SATELLITE TV NEWS

Number 5 - Winter 1982 - £1-75

Incorporating Cable Television

ПРОГРАММА
ВРЕМЯ
MEGASAT
MERRY XMAS

FIRST DETAILS OF SATELLITE TV IN UK

SATELLITE TV NEWS

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DESIGNED AND PRODUCED BY:
HRC Editorial Services,
41/47 Derby Road,
Heanor,
Derbyshire DE77QH.
Telephone: 077 37 2460.

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Our main cover photograph is courtesy of Hawker Siddeley Dynamics Limited and shows the OTS 2 under test at British Aerospace Dynamics, Stevenage. The top left inset shows the Ted Turner dish farm at WTBS Atlanta courtesy of Scientific Atlanta, bottom left courtesy of Precision Metals Limited and the right inset shows Graham Lawson of Megasat making a feed adjustment to a dish capturing Soviet pictures from Gorizont.

Mogul International

This issue will co-incide with the two-day seminar "Revolution In Satellite Technology and Communications" being staged by MOGUL INTERNATIONAL at the Grosvenor House, Park Lane, London W1, and chaired by Sir Harold Wilson KG, OBE, FRS, MP.

Delegates will be able to examine in detail the implications of the Satellite Technical Revolution, the funding role of merchant Bankers, international regulations and control, and the legal implications concerning licensing, copyrights (including spill over) and State Sovereignty including basic citizens rights.

Mr. M.I. Mogul, the chairman of Mogul International Management Consultants Limited has advised Satellite TV News of some amendments to the list of speakers published in our last issue.

a) General Sir Harry Tuzo is now unable to speak at the conference.

b) A.D.G. Milne will be replaced by Bryce McCrirrick, Director of Engineering, BBC.

c) Sir John Terry will be replaced by David Norris.

Photograph of Little & Large by courtesy of BBC Television.

COUNT DOWN TO CABLE

Although some people consider that the Government's reported proposals for the expansion of cable television and associated satellite broadcasting are a little restrictive at last the green light is for "go".

We are already hearing reports that British cable operators have spoken with the American giants, Home Box Office and The Movie Channel tentatively enquiring whether their existing service could be uplinked via INTELSAT for simultaneous European presentation of their 24 hour a day service.

CABLE NEWS NETWORK boss TED TURNER is due in Great Britain this month. Already flushed with success after making an agreement with Japan Cable Television to provide 17 hours per day of his C.N.N. service via the Pacific INTELSAT, he is expected to announce a similar success in Europe. The 24 hours a day news service will also be seen in Australia, and these three new feeds are understood to commence January 1, 1983.

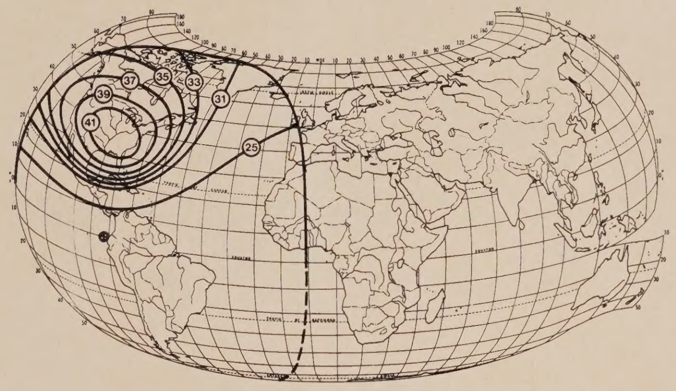
POSSIBLE RECEPTION OF U.S. DOMESTIC COMMUNICATIONS SATELLITES IN THE U.K.

A ripple of interest passed through the cable industry recently following the suggestion that certain of the American domestic satellites might be receivable in the U.K., given a sufficiently large antenna.

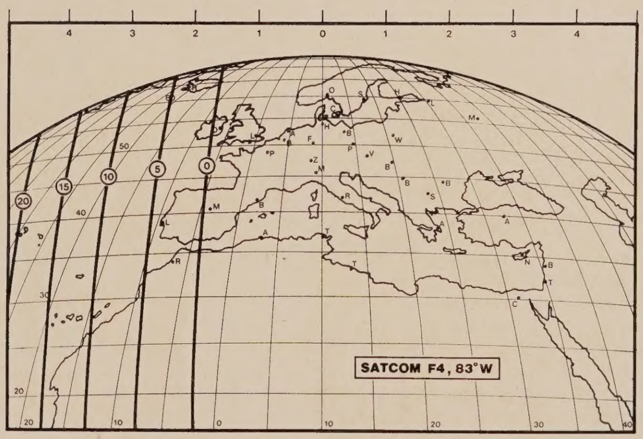
We asked TVRO consultant Steve Birkill for his thoughts on the possibilities. He feels the first alert may have been triggered by the fact that Westar-4, now on station over 99°W, underwent on-orbit testing during March this year in the Western Union 'spare' orbital slot at 79°W. Westar-4 entered full-time service at 99°W on April 5th, replacing the aging twelve-transponder satellite Westar-1. The latter was subsequently relocated to 79°W, but it is not expected to carry TV traffic on a regular basis.

Steve continues: "The 79°W location results in line of sight visibility from the south-west corner of Britain and all of Ireland. But visibility does not equate to receivability. At an elevation angle of less than two degrees even the largest antenna intercepts a considerable amount of terrestrial thermal noise. Manufacturers in general specify antenna noise temperatures only down to elevation angles of 10 or perhaps 5 degrees. An antenna noise temperature of 200K is a bad start when aiming to receive a satellite so far off boresight. Looking at the Westar-4 footprint pattern we can estimate the maximum EIRP expected towards the U.K. to be in the region of +18 dBW. For a standard receiver operating at threshold, this demands a G/T (figure of merit) of at least +34 dB/K. Even an Intelsat standard 'B' terminal need only achieve +31.7 dB/K, and that at 10° elevation. I can imagine that an Intelsat 'A' standard antenna at a location like Goonhilly *may* have been capable of good reception from Westar-4 while it was at 79°W, *if* any television had been carried.

"Consider two other US domsats. Satcom F4 joined RCA's fleet of C-Band birds this year, entering service on March 1st at 83°W. F4 is now home to several of the American satellite cable and movie services, including Bravo, Escapade, National Christian Network, Trinity Broadcasting Network, The American Network and others. F4's extended footprint pattern shown here indicates a 25 dBW contour towards the U.K. This is the saturation value on the most favourable transponder set, my estimate, and represents the upper limit of the range of probable signal levels. 83°W puts the satellite below the U.K.'s western horizon, though it is just visible from western parts of the Irish Republic, and from Iceland. It is believed that an Icelandic cable company is already carrying programming from this satellite, though the elevation angle from Reykjavik is only some 3.5 degrees.



Off-Boresidht EIRP contours (ABW) at saturation, Satcom F4, most favourable transponder set.



RCA Satcom F4, look-angle (elevation) contours, Europe.

HOW TO CONTROL DISTRIBUTION OF SATELLITE TRANSMISSIONS WITH OAK'S ORION™ ADDRESSABLE SATELLITE SECURITY SYSTEM

If you're concerned that unauthorized viewers may be receiving your satellite transmissions . . . if you want to deliver programming selectively to certain viewers . . . if you want to "turn off" subscribers who don't pay their bills . . . if you want to carry premium pay-per-view events . . . if you want to block out certain commercials in certain geographical areas . . . now you can do something about it.

Unauthorized viewers receive no audio and see only a jumble of broken color bands.

Oak's new ORION system is a sophisticated encryption network designed specifically to enable you to fully control the distribution of your satellite signals. It ensures that only those viewers you individually authorize receive intelligible audio and video.

The ORION encryption process is based on a sophisticated, proprietary algorithm which, in effect, is the system lock. The video signal is scrambled by entirely rearranging various time/amplitude elements in a highly dynamic, random manner, and the audio is encrypted using highly secure digital techniques; all addressing and control information is inserted within the transmitted signal by the program supplier.

Only authorized viewers equipped with an ORION decoder can recover the original television signal.

Individual decoders or groups of decoders can be turned on and off in immediate response to changes in programming and subscriber status. Fully proven computer software minimizes operator input requirements, and a business computer interface is also available.

Each decoder or group of decoders may be authorized to receive any or all of 49 different program tiers corresponding to categories of programs such as pay-per-view events, regional news, movies, sports, etc.

Who on earth is listening in? With Oak's ORION Satellite Security System, it's up to you.

The ORION Satellite Security System consists of a pre-encoder, post-encoder and one or more decoders. Each unit occupies two mounting spaces in a standard 19-inch rack. The extremely rugged construction of the ORION components is designed to ensure maximum reliability, particularly in applications where equipment is subjected to rough handling encountered in shipment. ORION versions are currently available to meet CCIR as well as FCC video standards.

This flexible program tiering concept has evolved from many years of addressable technology experience at Oak. Oak is a world leader in CATV and STV signal encryption. ORION is a fully operational and field-proven system designed and produced by people at Oak with exceptional background and expertise.

For a detailed technical description, call or write:

OAK Satellite Corporation | Satellite Systems Division

16935 West Bernardo Drive, Rancho Bernardo, California 92127 • 714-485-9880

"The first operational U.S. domsat to be above the U.K. horizon will be Hughes Communications' Galaxy-2, now due for launch to a slot at 74°W in September 1983. Galaxy-2 will have a positive elevation angle over the whole of the U.K., though its footprint is expected to be less favourable than that of Satcom F4. Hughes' intentions are not yet clear but it would be logical for them to concentrate TV relay on their Galaxy-1 craft at 135°W, first up and in a location familiar to U.S. cable operations. That would leave Galaxy-2 for Hughes' proposed business satellite services, making it less interesting to us.

"In the event of any U.S. TV being directly receivable here, it seems unlikely that regulatory restrictions could be overcome to permit its use by cable operators. The U.S. domestic carriers are not licensed for international transmission, that being the province of Intelsat. Any legitimate cable service of live American TV distributed within the U.K. would have to be brought in by British Telecom via Intelsat, a means already available using existing space and ground hardware.

"Of particular interest for individual reception over a wide area is the Intelsat relay of American network TV for the U.S. armed forces. Beyond the NBC sports package now seen each Saturday, there exists a plan to feed a channel of live US network fare to the American Rapid Deployment Forces stationed at locations throughout the Middle East and Indian Ocean regions. The U.S. Defense Department has reportedly signed a pact with Comsat (the United States representative of Intelsat) to carry this service on a full transponder global beam of the Intelsat spacecraft located at 1°W. This beam would cover all of Europe, the Middle East and Africa, as well as South America. For acceptably noise-free results a 7-metre antenna would be required in most African locations, or 8 to 9 metres in the U.K. Use of a threshold-extension demodulator, or acceptance of some impulse noise, would reduce the antenna requirement to the 6-metre range. No start date has been announced for the service, but it would seem unlikely on the existing satellite at the 1°W location, Intelsat IV F2. This has limited north/south stationkeeping, resulting in a four degree orbital inclination, a severe tracking requirement for multiple small terminals. A spare Intelsat IV is currently in slow drift orbit to the 1°W station, possibly to carry the new service by 1983.

"Interestingly, the Pacific Ocean region will be rather better served by U.S. TV. Cable News Network plans a live feed of several hours per day to outlets in Australia and Japan, starting in the New Year."

Steve advises us of another new full-time Intelsat domestic lease: "Argentine Television is currently up on full global transponder 12 of Intelsat V F2 at 27.5°W. Weekday evening programmes start around midnight our time, but colour bars or test pattern are transmitted outside programme times. Uplink is Balcarce III, near Mar del Plata. System is the rare PAL-N, where the NTSC 3.58 MHz colour subcarrier is coded with PAL switching, on a 625-line 50 f/s raster. Sound is transmitted by 6.4 MHz subcarrier. The other TV lease occupant of this satellite is Morocco, on eastern hemispheric half-transponder 3 (effectively), 625 SECAM with SCPC audio. Both these leases are receivable with an antenna in the 6-metre range, throughout Europe."

We are also informed that Steve's long-awaited International Satellite TV Reception Handbook, which covers in detail the reception possibilities and receiver requirements at any location is now due for publication in October. Enquiries to SSTI, P.O. Box G, Arcadia, Oklahoma 73007, U.S.A., telephone (405) 396-2574.

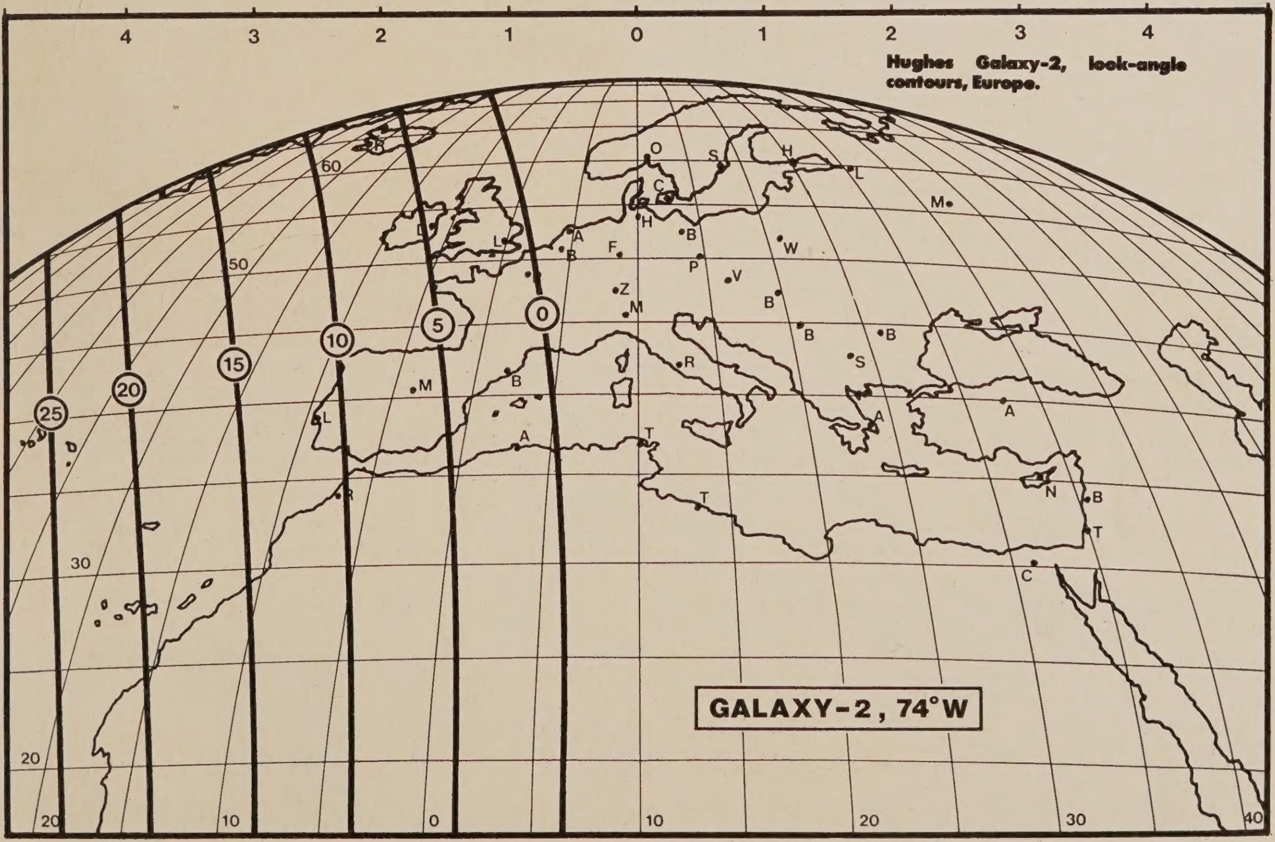
So there we have it. We told you a year ago that the American Forces radio and television service, Turner Broadcasting and the American movie channels would be breaking into Europe.

Many people believe that satellite and cable television is still a couple of years away but we all know that that isn't the case. Given the opportunity the explosion of new services will be dramatic. Some businesses located on the offshore tax-haven islands have begun negotiations with our neighbouring independent European states hoping to "lease" part of their satellite transponder allocation in future years.

More news next time.

Todd Slaughter

SATELLITE TV NEWS



Hughes Galaxy-2, look-angle contours, Europe.

D.I.Y. SATELLITE TV TERMINAL. PART 2

By Hugh Cocks

This month we are embarking upon construction of the low noise amplifier. The unit 'LNA' for short, takes the weak signal from the feedhorn and amplifies it up prior to frequency downconversion to more 'handlable' Uhf frequencies. Up to recently conventional bi-polar transistors were used as the amplification device but then the GaAs FET (Gallium Arsenide Field Effect Transistor) came over the horizon to offer a very low noise figure which is highly important as the less noise the amplifier contributes to the signal the better. Three years ago this amplifier would have been prohibitively expensive for amateur usage.

We are reproducing the California Eastern Laboratories application notes below on the amplifier and power unit. GaAs FETS must be handled with some delicacy as will be understood after reading the application note. I will add my practical construction comments after you've read it.

3.7 to 4.2 GHz GaAs FET LNA using two NE21889's

INTRODUCTION

The amplifier is constructed using a 0.8 mm glass-teflon circuit board, three 10 pF capacitors, four 1000 pF capacitors, four 1500 pF feed-through capacitors, four ferrite beads and a housing. The typical noise figure is 1.2 to 1.7 dB in the 3.7 to 4.2 GHz frequency band as shown in Figure 2. The gain and input return loss is shown in Figure 3 and 4. The power supply described in the CEL Application Note, "Two Stage GaAs FET LNA Bias Supply" (AN80901) is recommended to bias this amplifier.

Circuit Design

The NE21889 noise parameters at 4.2 GHz with VDS = 3 V and ID = 10 mA are:

$$NF_{opt} = 0.9 \text{ dB}$$
$$G_a = 13 \text{ dB}$$
$$\tau_{in} = 0.68$$
$$R_n/50 = 0.39$$

The first stage input matching circuit uses a quarter wavelength transformer and a series inductor to match the input impedance to the optimum source impedance. The quarter wavelength transformer is 33 ohms in order to transform the input 50 ohms to 21 ohms, and the package gate lead is used to series resonate the FET input impedance. The interstage matching filter is less complicated because the optimum source impedance and the load reflection coefficients are quite similar. Thus, a quarter wavelength 50 ohm transmission line can be used to match the first stage output impedance to the second stage input impedance.

The second stage output impedance is series resonated using the package lead for an inductor. This is followed by a quarter wavelength 40 ohm transmission line which transforms theo output stage series resonated load impedance of 30 ohms to 50 ohms. Open circuited 50 ohm transmission line stubs are empirically added to the circuit; two at the input and one at the interstage to compensate for the FET package source lead inductance and the blocking capacitor parasitics.

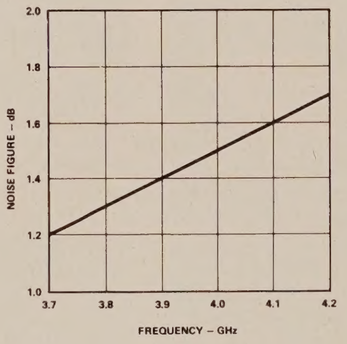


Figure 2. Noise Figure performance of amplifier.

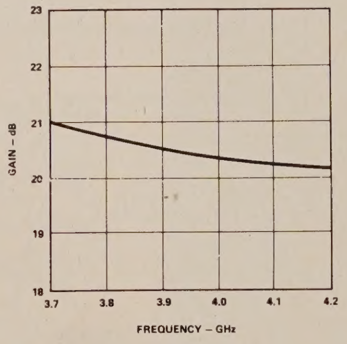


Figure 3. Gain performance of amplifier.

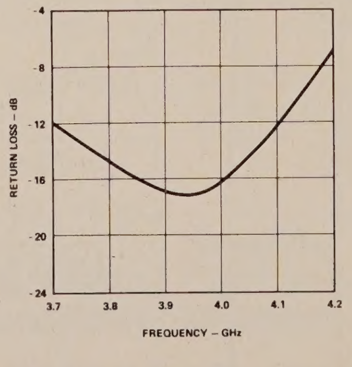


Figure 4. Return Loss performance of amplifier.

Construction

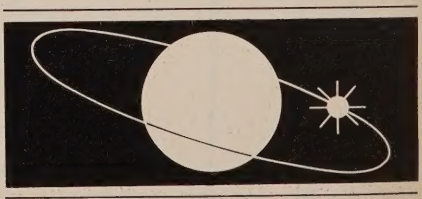
Set up a work area with a grounded work surface, i.e., a sheet of metal, copper clad P.C. board material, or conductive plastic. Use a grounded soldering iron of 18 to 27 watts. Never use a soldering gun.

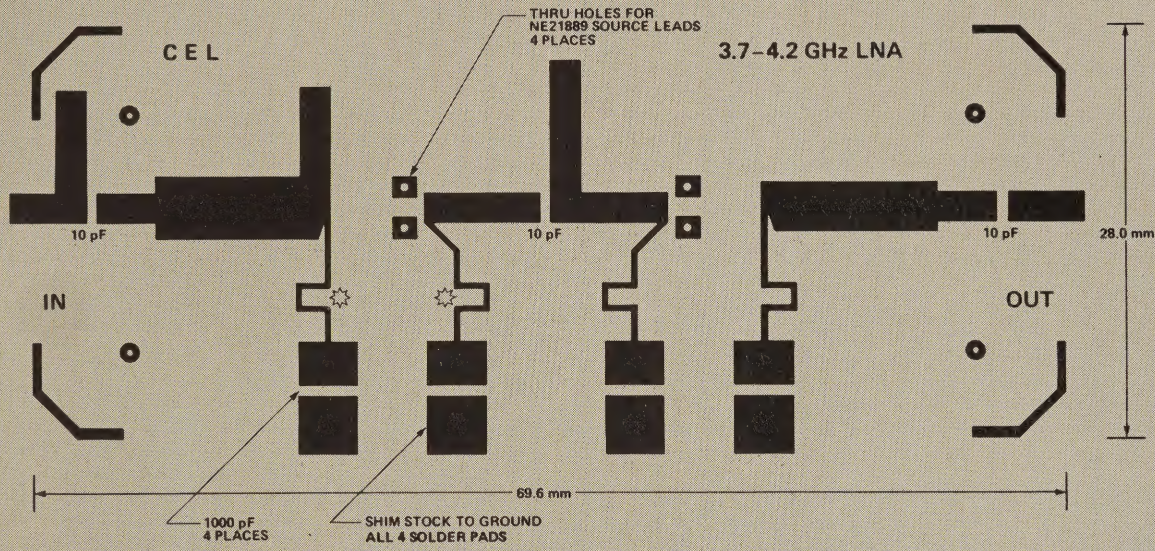
Wrap .001/.002 thick brass shim stock around the lower edge of the P.C. board, as shown in Figure 5, to create a low inductance path to ground for the bias circuit chip bypass capacitors. Install the three 10 pF DC blocking chip capacitors and the four 1000 pF RF bypass chip capacitors using a minimum amount of solder. Solder 4 wires (24/26 gage) to the bias line pads.

Provide a good ground by using a small chain or non-insulated flexible wire wrapped around the assembler's bare wrist. Take the first stage FET out of its shipping package and place on the grounded work surface. Form the source leads down so that they will fit through the two holes in the circuit board. Insert the FET into the circuit board with the gate lead toward the input end of the board (slashed lead). With the device seated firmly against the PC board, form the source leads flat against the back side of the PC board and solder them down. Trim the drain lead, fitting it to the very end of the input strip line and then solder both the drain and the gate lead.

Take the second FET and insert it into the PC board with the gate toward the input, using the same procedure as with the first FET. Solder the source leads. Next, trim the gate lead, fitting it to the very end of the output strip line, and then solder both the gate and drain lead.

Install the board into the chassis, attach the connectors and solder them to the amplifier input and output transmission lines. Solder the bias wires to the feed through caps on the chassis side after putting ferrite beads on the feed-through leads. Use a meter to set the V_{DS} to 3 volts and the I_{DS} to 10mA. Never touch the gate connection with the meter leads as the transistors are prone to shorting out due to static discharge.




THRU HOLES FOR NE21889 SOURCE LEADS 4 PLACES
CEL
3.7–4.2 GHz LNA
10 pF
10 pF
10 pF
28.0 mm
IN
OUT
69.6 mm
1000 pF 4 PLACES
SHIM STOCK TO GROUND ALL 4 SOLDER PADS

☼ POSITION OF FERRITE BEADS FOR AMP STABILITY
(SEE TEXT)

Figure 5. P.C. Board Layout.

Parts List:
NE21889 FET (2 ea.) California Eastern Laboratories
10 pF Chip Capacitors (3 ea.) ATC #100A-100-J-P-X-50 or equivalent
1000 pF Chip Capacitors (4 ea.) Johanson #50R11W102KP or equivalent
1500 pF Feed-through Capacitors (4 ea.) Erie #2425-003-W5U0152AA or equivalent
Ferrite Beads (4 ea.) Fairrite #2643001301 or equivalent

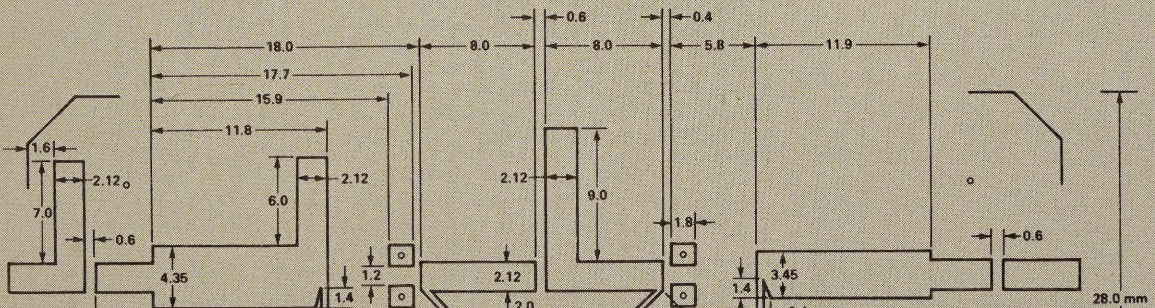

0.6
0.4
18.0
8.0
8.0
5.8
11.9
17.7
15.9
11.8
1.6
2.12
7.0
0.6
2.12
6.0
4.35
4.13
2.12
9.0
1.8
1.2
1.4
0.4
2.12
2.0
2.0
2.0
1.6
2.8
1.4
3.45
0.4
0.4
0.6
28.0 mm
2.4
3.0
0.6
4.0
6.2
69.6 mm

Figure 6. P.C. Board Dimensions. (Units in mm)

Two Stage GaAs FET LNA Bias Supply

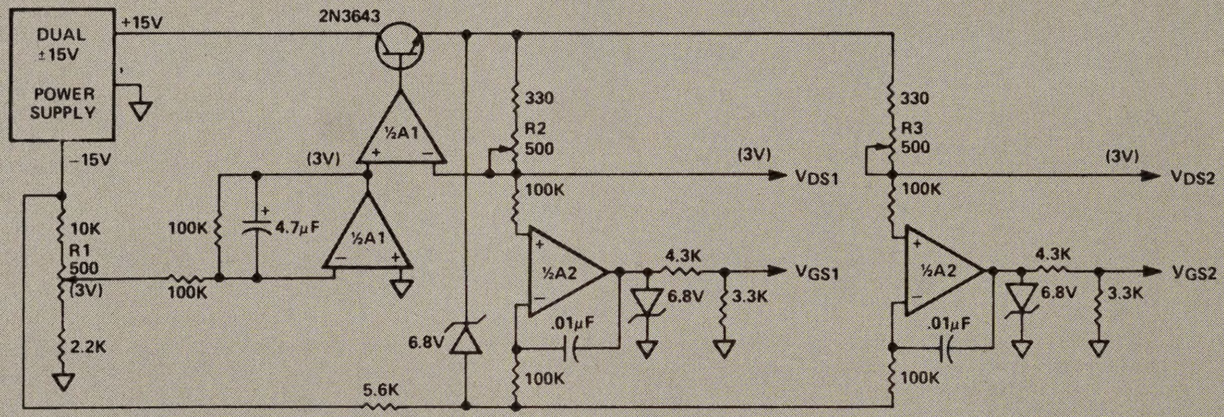
Introduction

This regulator is recommended to bias a two stage, grounded source GaAs FET LNA with constant drain currents.[1] With minor modification, two additional bias stages could be added to this circuit.

Specifications

VDS = 2.8 to 3.2 volts, adjustable
ID = 8 to 20 mA, adjustable

CIRCUIT DIAGRAM

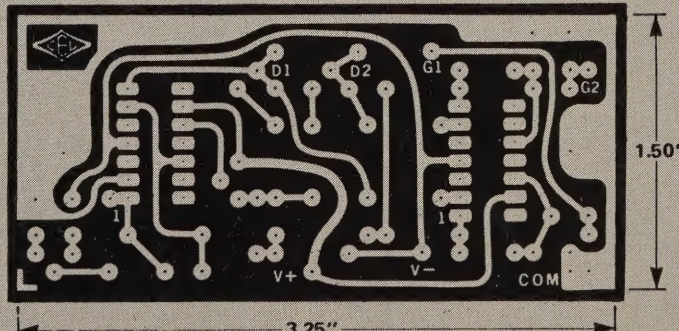

DUAL ±15V POWER SUPPLY
+15V
-15V
2N3643
½A1
½A1
(3V)
4.7μF
100K
100K
10K
R1
500
(3V)
2.2K
5.6K
6.8V
330
R2
500
(3V)
VDS1
100K
½A2
4.3K
VGS1
6.8V
3.3K
.01μF
100K
330
R3
500
(3V)
VDS2
100K
½A2
4.3K
VGS2
6.8V
3.3K
.01μF
100K

A1 and A2: 747 Dual Op-Amp (NATIONAL OR EQUIVALENT)
All Resistors: ¼ Watt

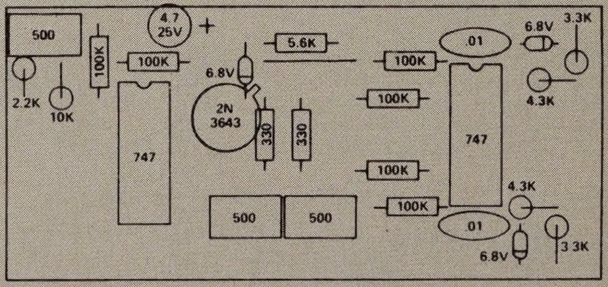
Circuit Operation

When the ±15 volt power supply is turned on, integrator A1 ramps on which allows VDS and VGS voltages to also ramp on. The drain to source voltage (VDS) is a constant voltage, which is adjusted by the variable resistor R1. The constant drain current (ID) is maintained by the comparator A2 and is adjusted by R2 for stage one and R3 for stage two. Nodal voltages are shown in the circuits of IDI = 10mA and ID2 = 20mA. The resistance values for the above conditions are R2 = 350Ω and R3 = 10Ω.

CIRCUIT BOARD AND LAYOUT


D1
D2
G1
G2
1
1
V+
V−
COM
1.50"
3.25"

Actual Size


500
100K
4.7 25V
+
100K
5.6K
100K
.01
6.8V
3.3K
2.2K
10K
747
6.8V
2N 3643
330
330
100K
4.3K
100K
747
500
500
100K
4.3K
.01
6.8V
3.3K

Reference

1. D. Lane, "'Smart' Bias Supply for Delicate MW Transistors," *Microwave Journal*, June 1978, pp. 126—142.

I've found that in practice that the unit needn't be built with quite such elaborate metalwork surrounding the printed circuit board. Indeed I've built the unit in a small case feeding the frequency downconversion unit direct without the need for the output plug/socket assembly. I did this however with some experience behind me with the basic unit & might be a little wary of doing this straight off. Different power supplies have also been tried with success. My current one (pardon the pun!) feeding the unit employs a 12v feed which is regulated down to 5v via a standard 5v regulator IC(7805). The negative bias is derived from a positive dc to negative dc converter using a CMOS IC. The 5v rail is fed to each GaAsFET via a 200 ohm resistor and the negative bias is adjusted for 3v on the drain connection of each, by ohm's law we know that 10mA through a 200 ohm resistor will drop 2v and thus the devices are correctly biased. I'm not publishing the circuit yet as the supply is still being proved by time! It might be that it is not as safe to use as the published one from a point of view of transient protection. GaAsFETS are prone to shorting out if a 'spike' is present on the supply, this may be caused by lightning and many connections of heavy loads (eg electric motors) to the mains at the point of switch on. If all proves well and I'm not surrounded by dead transistors I will publish it shortly. It's more convenient as a 12v feed can be run up to the dish mounted head unit to run everything.

Having built the unit it is possible you may find a problem present, this is one of instability. The trouble here is that the input stage of the amplifier needs to 'see' a very accurate 50 ohm impedance coming from the feedhorn. In practice this is difficult to accomplish as the impedance will become erratic outside the bandwidth (3.7-4.2GHz) of the horn which unfortunately is still visible to the input of the amplifier, the amplifier then becomes unstable. The effect is that it tries to draw too much current and tuning over the satellite range the TV screen will produce all manner of interesting patterns! The effect is similar to acoustic feedback in an audio amplifier when a microphone is placed close to the loudspeaker. Don't run the amplifier for long like this.

The cure is to mount a device called a circulator between the horn and amplifier. This corrects the impedance to an accurate 50 ohms being presented to the input of the amplifier without itself introducing much loss of signal in the process. Unfortunately they are not as yet available 'off the shelf' to constructors in the UK, we are however endeavouring to make arrangements for a supply to be available by the time this is in print!

A temporary cure is at hand however. Two ferrite beads may be stood on transistor no.1's gate and drain bias feed line coming from the input connections to the transistor (indicated on board layout). This will stop the amplifier oscillating and enable one to temporarily make do until a circulator is at hand.

The chip capacitors used on the pcb are very small indeed. The safest way to avoid losing them when building up the board is to place everything in a light coloured tray. When they've been soldered in you should transfer to the earthed worksurface for transistor mounting as directed on the sheet.

The easiest way to solder the capacitors is to rub the metal ends on a piece of paper to remove any tarnish present, tin the pcb area where they are to be soldered in and then place carefully the first capacitor due for soldering onto the board (tweezers may assist with this operation). Hold the capacitor in place with a screwdriver blade and dab solder on one end to secure it firmly, remove the screwdriver and go to the other end and thoroughly solder it, returning to the first end to tidy up the anchoring joint. After the first one is done it becomes easier and takes longer to describe here than to do.

A word of caution. When you've earthed yourself with the chain around your wrist if any object you touch is electrically live you will become part of its return path to earth with all the consequences that electric shock can bring (this is the last edition of Satellite TV News you'll be reading!). Make sure with the aid of a neon screwdriver or similar that no live or semi live metal cases etc are within hands reach. Its as well to tidy up any doubtful mains wiring at the same time to keep the risk of those electric transients to a minimum.

If you feel that this article has been a bit on the 'heavy' side don't despair. Commercial LNA's are available in the US for about $500+. If you or a friend are going there it is worth looking into purchasing one. They all have a waveguide type input so buy a horn over there as well which will be designed to bolt onto the amplifier. There is a newer type of unit called the low noise converter which also has the first oscillator and mixer within the same case, the output being at Uhf 'block downconverted' for feeding into the house. All LNA's are 'rated' by what's called noise temperature, this is similar to noise in dB's which you should be familiar with but the temperature, in degrees Kelvin is added to the noise contribution that the dish produces by 'seeing' some of the earth on its side lobes. The earth is a hot noise radiator and it follows the nearer the horizon our 'bird' is in the sky the more critical the noise temperature of the system becomes. The mixer of course produces noise as well but the LNA 'sees off' most of this.

The US standard now is 120 deg K (ours may be as good as 100 with good samples of transistors) but 100 or even 80 deg K are becoming common. As the noise goes down the price goes up as I'm sure you've worked out already. Professional satellite installations (Goonhilly Down, Madley etc) cool the LNA down to absolute zero, this really gets the noise temperature way down but is beyond the scope of the enthusiast of course.

Don't bother buying US satellite receivers as the systems there are quite different and much modification would be needed to pick up our satellites in view from the UK! There may shortly be commercially produced LNA's over here if demand is sufficient from readers of this article. Write in and let Satellite TV News know what you think. A slightly cheaper GaAsfet called the NE720889 is available which will work just as well with this board but is less rigorously selected for its noise performance. You might obtain a noise temperature of 140-170 deg K using this type.

Some experimentation could be done by adding a 3rd or 4th identical stage to bring the gain up to 30/40 odd dB with some patience over stability problems a very good amplifier would result. Alternatively a cheap bipolar 3rd/4th stage could be added, these transistors wouldn't contribute significantly to the overall noise, this being set by the GaAsfets but would add 'bulk gain' to the system.

NE21889/NE72089 Transistors are available from:-
Castle Microwave, 2 Clarence Rd., Windsor, Berks. SL4 5AD.
Tel: 07535 56891

Low noise amplifier printed circuit boards and chip capacitors are available from:-
Hugh Cocks TV Services, Cripps Corner, Robertsbridge, Sussex TN32 5RY.
Tel: 058083-317.

Down-Conversion Oscillator

The oscillator described here is mounted at the dish head and is mixed with the signals hopefully pouring in abundance from your LNA. The output from the mixer (to be described next month) is then amplified and fed down normal UHF co-ax aerial cable to the indoor receiver unit. The 3.7-4.2GHz band is converted into the Uhf range 450-950MHz (give or take a little). The circuit was first built by satellite pioneer Steve Birkill and thanks go to him for allowing it to be published in Satellite TV News.

Up to recently very expensive voltaged tuned microwave oscillators had to be purchased from the USA. This unit gives admirable performance for a very small price, using a cheap Uhf 'distribution' transistor oscillating far beyond where it was intended to. I have selected the BFR90/91 as working best with this circuit, when tested I found Gorizont 5 on 3675MHz coming out on ch 21 Uhf (470MHz) having no adjustment made to the original pcb. The nominal frequency of the unit is 3250MHz though the circuit can be made to work anywhere in the 3-4GHz band if you wish to put it to other devious employment!

The design is a common collector Clapp, using a silicon NPN transistor with output taken from the emitter which dc wise is earthed. The matching into the mixer is optimised by varying the length of a shunt 50 ohm stub with a patch of copper foil shorting the stub out at the optimum point. The collector is RF earthed by a 1/4 wave stub. The bias input to base and collector is via a quarter wave high impedance line, this is a single strand of stranded copper wire (0.3mm diam). Each wire, (effectively a choke) is taken to a pad where the dc bias for the oscillator is fed in. The pads are decoupled by 1000pF and 4.7pF (or 10pF) capacitors, two differing values are used because of the differing characteristics of these on microwave frequencies (the 1000pF chip capacitor may appear inductive). Normal wire may feed in the dc to the pads.

The oscillation frequency is set by the capacitance seen by the base of the transistor. A series of pads may be linked or disconnected to give the desired frequency — I have shown the optimum points for the BFR90, generally the higher the Ft of the transistor the more base area will need to be linked in.

Don't overheat the transistor when soldering in or playing about with the pads, also be fairly sparing with the solder as if too much is used the frequency will be off. We should all know how to solder in chip capacitors after reading the last article. In practice small lead ceramic decouplers will do here. Officially microwave Teflon printed board is required but ordinary double sided appears to work just as well. The rear side of the pcb is used as a ground plane and the upper earth print is linked through as indicated on the diagram (1mm holes).

To keep the oscillator stable an active bias circuit is used. Any general purpose PNP silicon transistor will do. The oscillator draws 17-18mA from the supply (12v+) and will run slightly warm at this current, this is of no consequence. The output line feeds into the mixer board which I'll describe next time, the copper foil patch is shown in the optimum point for the BFR90 transistor. A good source of copper foil is inside the tin lid of an old rotary Uhf tuner vintage 1964-1970 (non varicap type).

The board will be housed together with the mixer and Uhf IF preamp in a common case, to be described next month, if desired the LNA may also be housed in the case also to cut down on expensive plugs and sockets.

Oscillator pcb's and bias boards may be obtained from Hugh Cocks TV Services, Cripps Corner, Robertsbridge, Sussex. Tel: 058083-317. Please include stamped addressed envelope with all enquiries.

BFR90/91 transistors may be obtained from several sources including, Ambit International 200 N. Service Road, Brentwood, Essex. CM14 4SG.

Footnote. I'm at present after a large dish 10 to 12ft diameter or even larger. If any reader has access to one or would like to build me one we could do a swap for some of the electronics or whatever. Please let me know.

SATELLITE TV NEWS

(OSCILLATOR) BIAS CIRCUIT

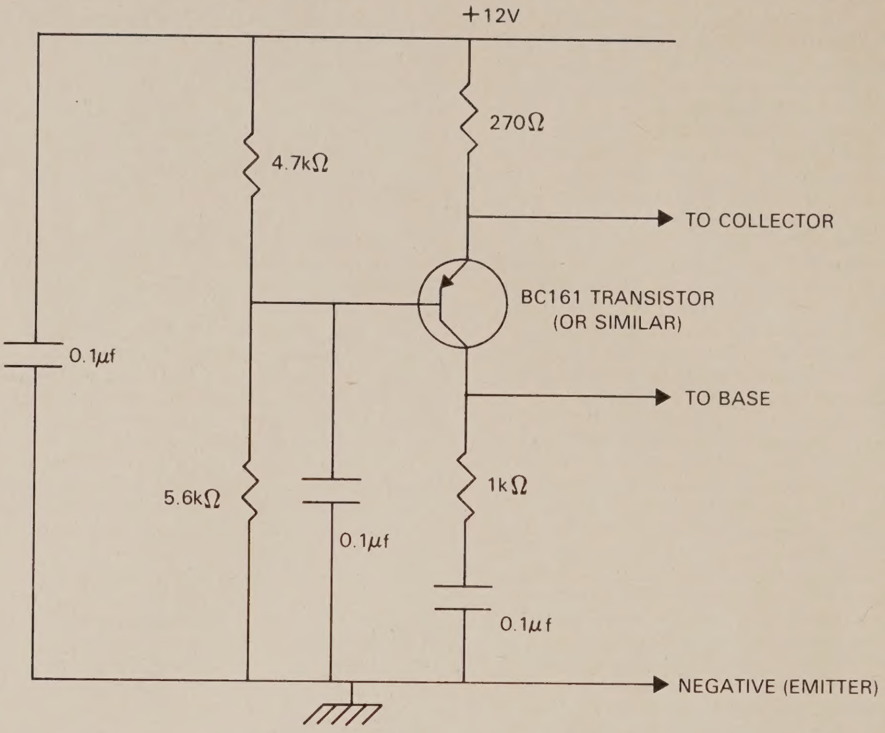
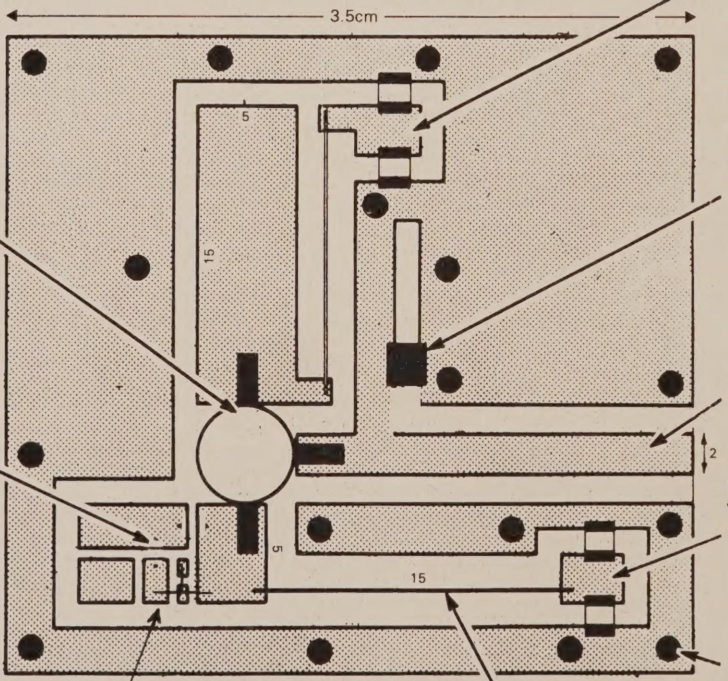


DIAGRAM 1 LAYOUT OF OSCILLATOR BOARD



Collector bias pad, decoupled with one 4.9pF and one 1000pF capacitor.

Copper foil shorting plate determines length of output shunt stub.

OSCILLATOR TRANSISTOR BFR90/91

50-ohm output line, direct to mixer.

Size of base pad determines frequency of oscillation. Here shown divided into segments, linked with wire to set frequency.

Base bias pad, decoupled with one 4.7pF and one 1000pF chip capacitor.

Optimum links on base pads for BFR90 Transistor for 3250MHz oscillation frequency.

Base and collector feed chokes are quarter-wavelength of thin copper wire.

Currently Active Russian Gorizont 5 Channels.

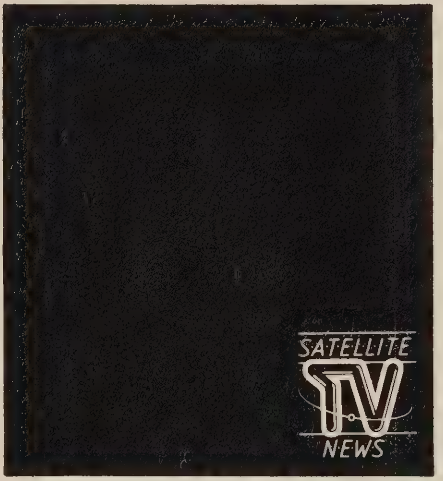
H. Cocks

1	2	3	4	5	6
ACTIVE			**ACTIVE**	**ACTIVE**	
3675	3725	3775	3825	3875	3925

All frequencies in MHz. There is a slight guard band between channels, frequencies shown indicate centre transponder frequency. Moscow ch1 is logically on ch1! Ch's 4 and 5 have a lower EIRP (signal strength) but tend to have more interesting programme material. Ch 5 shows long periods of assorted E.Europe testcards, news exchanges etc. Even UPITN show 'satellite news from London' (to whom one wonders!) at 1300GMT each day. After official closedown ch 5 may put out films definitely not for internal showing in Russia! I believe Cuba may put out programmes in the wee small hours too on 525 lines NTSC colour.

For really first class pictures on ch 4 and 5 a large dish is needed, ch1 only needs 6ft or so. Quite watchable ch 4/5 pictures may be obtained on 8ft or over.

Position in the sky (reference London) is 18 deg W with 30 deg elevation.



No other publication in the world provides such detailed and comprehensive information on all the artificial satellites launched since the first in 1957.

From 1958 to 1978 this table of data has been issued as a series of supplements by the Royal Aircraft Establishment where the data has been compiled.

Macmillan is now publishing this unique work revised and updated to December 1980 in one volume. It contains for the first time a comprehensive index of every satellite launched from 1957– December 1980. The tables include details of all satellites launched during this period. The data covers: names, designations, launch dates, lifetimes, weights and size and also orbital data (date of orbital determination, orbital inclination, nodal period, semi major axis, perigee and apogee height, orbital eccentricity and argument of perigee). As the most reliable and comprehensive table of satellites to date it is used and formally recognised by the USSR and the National Aeronautical and Space Agency in the US.

All four authors have worked directly or indirectly for the Royal Aircraft Establishment, Farnborough. D.G. King-Hele, who is a fellow of the Royal Society, has many publications to his name including *Satellites and Scientific Research, Theory of Satellite Orbits in an Atmosphere* and *Observing Earth Satellites.*

September 1981
297×210mm

656pp (about 600 tables)
0 333 32244 7

EARTH SATELLITES 1957~1980

**compiled at the
Royal Aircraft Establishment, Farnborough, England**

D.G. King-Hele, J.A. Pilkington, H. Hiller & D.M.C. Walker

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MARKETING TO MINORITIES

by
Peter Evanow

Introduction:

With the advent of cable broadcasting in Europe, minority groups will for the first time be able to campaign for their own individual channels to suit their individual minority tastes. At last the much demanded, ethnic broadcasting service can become a commercial reality. For many years in the United States black radio has survived in a dominant caucasian society now the USA boasts the first black run cable system and Bill Johnson the President of KBLE of Columbus Ohio discusses how he has committed himself and his station to understanding the black audience in his community and nationwide. (This article has been published by arrangement with Cablevision magazine. Their mailing address is Titsch Publishing Inc, 2500 Curtis Street, Denver, Colorado 80205, USA).

Three and a half years and 8,400 subscribers later, William Johnson can sit back and reflect on what has been an exciting time, a trying time, but most of all, a valuable experience that is paying off rather well.

William Johnson is president of KBLE, one of four cable systems in Columbus, Ohio, the first and now one of only a handful of minority-owned cable systems in the country. As the oldest among them, KBLE has served as an example for the cable industry and as a showcase in the 86-percent black community it serves.

That KBLE is in fact a showcase is evidenced by the number of people who have come to Columbus to learn from its experience. "People ask for training and help, using our system as a model," says Johnson. "We've saved people thousands of dollars by demonstrating our system and how we built it." Johnson has entertained visitors not only from the United States, but from China, Japan, several Middle Eastern countries, Austria, West Germany and several African countries including South Africa.

"We're 'on the list' of the State Department's visitation program — something to see of interest in the Midwest," Johnson smiles. "I've talked with the visitors about telecommunications and what cable TV can do for their countries. It could in part reduce illiteracy rates. Cable can change their lives."

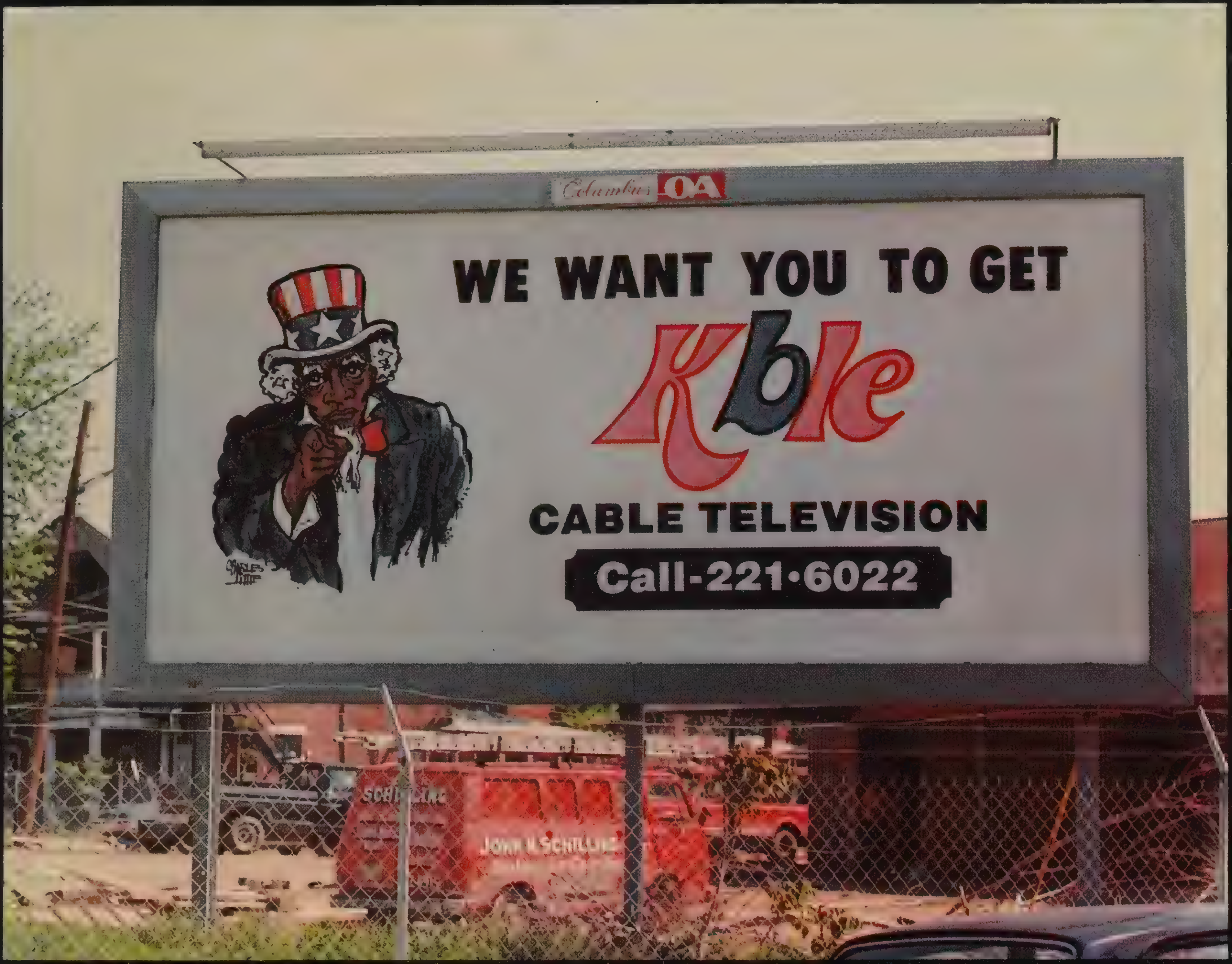
It can be said safely that cable successfully changed William Johnson's life. Sitting behind his cluttered desk, in his renovated 138-year-old office building filled with art objects collected during his many years of travel, Johnson epitomizes the well-established executive.

Johnson credits his success to "a lot of foresight, a lot of observation of other systems and a lot of mistakes." Johnson is a man with an ambitious vision of KBLE's future, but his record appears to justify the kind of growth he anticipates in the years to come.

Johnson formed KBLE when he received the franchise from the city in the summer of 1977. A native of Columbus, he began his career as a specialist in corporate and tax law. His prominence as a leading black lawyer in the community apparently lent credibility to his bid to build a cable franchise without any prior knowledge of the industry. He received help and support from a number of cable operators and financing from a local bank. That got him started. On Oct. 1, 1978, KBLE was launched with much promotion and fanfare. In Johnson's words, the black population was delighted that KBLE had managed to overcome the belief of some Columbus officials and residents that the enterprise could not succeed.

But succeed it has. As construction of the 173-mile plant nears completion, the system now passes approximately 30,000 homes, and Johnson expects to sign up another 4,000 subscribers by Sept. 1. Another 2,000 promised subscribers will be added as soon as the construction and installation crews can hook them up.

Johnson attributes his increasing penetration rate to marketing and public awareness. Since winning the franchise award, he admits that he has gained a great deal of knowledge about the industry, "but there is still so much to learn." Indeed, KBLE serves as his training ground for future plans and proposals — all concerning cable and minorities. "The credentials for what we have been developing are founded here in Columbus," Johnson says. "It is a place where I can cut my teeth and also provide an outlet for other folks to study our system. KBLE is a role model for other minorities who want to get a franchise and financing."



KBLE marketers have done their homework. Convinced "black people don't have a face in terms of advertising," as Johnson puts it, they use only promotional material that features blacks. One billboard, which won an award from the National Outdoor Advertising Association, depicted a black Uncle Sam who "wants you to get KBLE". The key, Johnson said, is to establish a rapport with the community. That is the goal of every cable operator, of course, but the black relationship creates a tighter bond.

Target marketing

But being a black cable operator doesn't mean a straight shot into a potential subscriber's home. The marketing strategies that Johnson has developed are equally applicable in other systems catering to a minority population.

"Black America historically watches nine hours more TV per week than its white counterpart," Johnson says. "Therefore, black America relies on TV and the electronic media for 65 to 70 percent of its news. We don't read." Additionally, blacks have a greater sensitivity to the value of what they can get out of their entertainment dollar than whites. Johnson adds that blacks are more consumer-oriented than savings-oriented. "Some of our subscribers would rather spend money on cable than put it in a bank," he judges. He adds that blacks typically pay cash or by money order and come in to the office to do so. And they don't always pay by the specified date. KBLE is perhaps more flexible than others in that regard, he says gently.

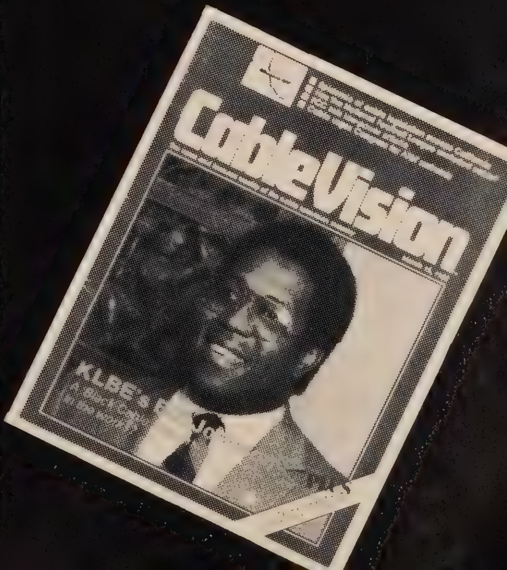
Remaining flexible is a goal for KBLE. "This is the year we market the hell out of the system," declares Johnson. "There are 3,000 subs that have left the system since Oct. 1978. We've been so busy signing up new subscribers that we haven't done any remarketing and now is the time."

What kind of audience is the black subscriber? Blacks are a considerable consumer force, with 20 percent of all U.S. purchasing power, yet they make up approximately 12 percent of the total population, according to Johnson's statistics. Fifty percent of all album purchases and 47 percent of the motion picture industry's gross receipts are generated by blacks.

It is this desire for entertainment to which KBLE caters. In 1981, the system launched its multipay effort, offering "Supervision", a tier consisting of four pay services — The Movie Channel, Showtime, Cinemax and Escapade/Playboy Channel. Subscribers can take all or any part of the tier. KBLE presently has a 65 percent pay penetration.

Expansion of channels has been another important step — KBLE has activated 24 of its 36 channels and plans to add more in another marketing effort. In addition, KBLE is the only system in the area with three earth stations.

When introducing new services, or announcing that the system plans to offer a new program package, Johnson solicits the advice and opinions of his subscribers. The "rehabilitated mansion", as Johnson calls his downtown office, serves as the "greeting and meeting place" in which he displays programming services. When KBLE announced that it was considering offering an R-rated pay service, it invited 900 randomly selected pay and basic subscribers to view both Midnight Blue and Escapade at Johnson's office. It was a way to meet subscribers and find out more than just pay service preferences. "We had to open our eyes to the visible marketplace of Columbus," Johnson explains. KBLE has conducted such introductory sessions with other new services as well, all designed to involve the subscriber with the system.



Johnson and his staff have carefully created a distinct image for KBLE. The separately coloured "B" in the company name represents "black". The black American colours of red, green and black embellish stationery the system uses. There also is a move underway to redecorate the system's office in a style that blacks can identify with, according to Johnson. "Blacks like to see one of their people succeed," he says. "Therefore, we want to show our office as a symbol of KBLE's success and as a result of our subscribers' commitments."

The image also includes newspaper ads that center on a growing black child, representing the cable system as it expands. "We've tried to capture the growth atmosphere of the community with our ads," Johnson says. The benefits of four cable systems in one town, along with the community and national awareness of Warner-Amex's QUBE system has helped cable overall, he adds. The systems work together in co-op advertising in local newspapers, a generic pitch for subscribers that lists all four company names.

"The (other) cable companies have been very good to work with," Johnson affirms. "As a matter of fact, the entire industry has been very cooperative." Johnson visited many systems prior to the building of KBLE to learn from them. Now others come to him. A group of blacks who are in the process of developing a cable system in East Cleveland have sought Johnson's counsel.

Target Selling

Door-to-door has proved to be the most effective way to contact potential and existing subscribers. It is a more valuable technique than direct mailers because an urban community often has a substantial illiteracy rate.

"Eyeball-to-eyeball" is the best approach, Johnson asserts. The system has to go out and regularly explain its services. There is an area of KBLE's territory that consists of boarded windows, but the people who live there are cable subscribers. While Johnson knows that it is a particularly low penetration area, he still considers it important. A customer service representative regularly covers this section, signing subscribers, handling disconnects and retrieving converters as well as contacting residents. "We go out and ask 'How can we help you, Mrs. Smith?' " says Johnson. "It's part of our service."

KBLE's sales staff consists of full-time firemen who work during their off hours and other people who moonlight for the system, canvassing the area from 6 to 8 p.m. In addition, Johnson has initiated an incentive program which enables office personnel to sell cable door-to-door on the weekends. The system considers every employee a salesperson, especially the technicians who install cable in the home. A uniform incentive program also has been established whereby KBLE pays the cleaning bills, keeping a fresh image for its visible workforce.

KBLE has had relatively little trouble keeping its delinquent accounts minimal. It shows less than $13,000 in accounts receivable, according to Johnson, yet he agrees that unpaid bills will always be a factor in urban markets. When conflicts between the system and a subscriber occur, the subscriber usually will come down to the office to discuss the problem. For a cable company to be credible, it has to have people of the same race to meet with a disgruntled customer, he adds. "It's also important to have other blacks in executive positions so they can meet with the customer and demonstrate that they are concerned and committed to that subscriber." Having someone on the customer service staff that speaks Spanish is also valuable. Johnson provides privacy booths where customers can discuss their problem discreetly instead of having everyone in the lobby hear it. "This is just general goodwill for any system," he says.

KBLE also has created a program for the elderly. The salesperson makes personal contact and proposes the idea of a discount of basic service or for installation.

Johnson has become a highly visible figure in his system area and the city of Columbus in general. He frequently does spot calls where he meets with subscribers simply to inquire about KBLE's service and quality. In addition, all complaints are routed to him and he personally responds to all letters. "When I write back to a customer, there is no such thing as appeal (to a higher source)," he says. "We usually correct any problem then."

KBLE has a board of directors composed of locally and nationally prominent blacks. Together, they add to the prestige of the system in the eyes of local subscribers and keep KBLE informed about whether it is properly promoting its image in the community.

Johnson wants his staff to be informed about the cable business as well, and sends many of them to seminars on marketing, technology and management assertiveness.

He also wants his subscribers to know that he is plowing money back into the city. He believes if a subscriber is willing to invest in cable, then he is willing to do the same for Columbus. It is a move that has drawn much praise. "The cable company has to be honest and share with the community — commit money to minority scholarship funds or to training stipends. We support minority companies and try to do business with them. KBLE sponsors little league teams in the urban areas and provides other forms of financial support for its residents."

Target programming

The biggest project on Bill Johnson's mind today is developing quality black programming both for KBLE and on a national scale. Four years ago, Johnson thought buying syndicated packages of black programs would be the way to go, but has since retreated from that proposal. "BET (Black Entertainment Television) supplies that material," he points out. "We need something different, original." (KBLE does carry BET.)

Johnson has his eye on creating a service that he says is "complementary to BET", a service that will create programming that has not already been done. "We have enough black sports and we don't need any more of *The Jeffersons*," he says. "Blacks need something more than one dimension — Nickelodeon's concept is more like a prototype of what we're looking for."

Johnson agrees that BET is sensitive to black concerns. "It fills a need today," he says, "but it isn't enough."

According to statistics, there are presently 27 million blacks living in the leading 20 metropolitan areas, yet the total number of black subscribers who can subscribe to cable today is only 1.4 million. (That will change soon as Dallas, Pittsburgh and other urban systems come on line.) But what will cable operators offer this important audience to entice them to subscribe?

"The Black Cable Network", declares Johnson confidently. Johnson says the financial commitment is there: he and his associates, whom he declined to name, are "in line for transponder space" and he has talked with MSOs about supporting or carrying the potential service. He has been prepared to introduce it for some time, but says he hasn't been willing to announce it because he doesn't want the service to be included in franchise proposals yet. But he is confident that the project will fly. "We plan to have cultural material — explore the black life. Cable has a definite responsibility to fill that need."

KBLE does do its own black-oriented programming — about 50 to 60 hours a week. Johnson calls it "street programming" — black events, news and church sermons. "Where on the birds do you see any black preachers?" Johnson asks.

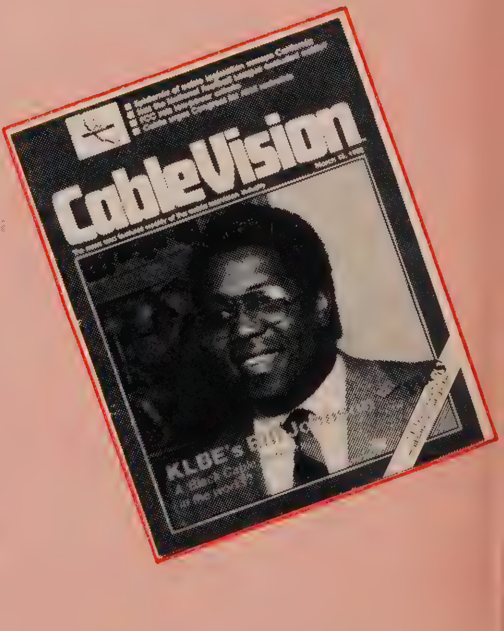
Future Target

Johnson is presently seeking the remaining franchise in Seattle, whose population is 30 percent minorities.

Johnson's proposal was made in the name of Seattle Community Cablevision, "Seacom", for short. (Johnson would have liked to spread the KBLE identity there, but a local broadcast station already owns the call letters).

Johnson has other plans that revolve around further franchising and possible acquisitions. However, his attitude has always been to sit back and hope that other minorities get involved in cable operations. He says many MSOs have contacted him about becoming a partner in a bid, but he shies away from them, preferring to retain a controlling interest in any venture he enters.

The philosophy of Bill Johnson is not that different from any other entrepreneur, and it has made him a very successful man at the age of 38. But despite the fact that he is proudly and vocally a minority businessman, in his words "a businessman is a businessman, whatever colour he is."



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TELSTAR: THE SHAPE OF TELECOMS SATELLITES TO COME.

by Michael Goss

Seated in front of his TV set on the night of Tuesday 16 September 1930, a certain Mr Douglas Walters from Bedford Park had a most unusual, if not unique, experience; so unusual-unique, in fact, that **The Times** felt it worth recording. Mr Walters claimed that between 9.45 and 10.30 p.m. his "amateur" set had picked up a television picture all the way from New York — a thing generally believed to be beyond the capabilities of the most sophisticated equipment then current, let alone those of the primitive kind found among radio hams during this, the infancy of television. In the last few minutes of this unscheduled transmission the astonished Mr Walters had managed to make out the head and shoulders of a person; that the image was rather indistinct was surely less incredible than the situation of his getting any kind of image whatsoever....

In the absence of any corroborating details or follow-up by the newspaper which printed this meagre outline, it may be tempting to reserve judgement on the Walters story. Perhaps it falls in the same Suspected Hoax by Persons Unknown category as the tale of the radio ham who allegedly picked up the wireless activity surrounding the sinking of the "Titanic" — 24 years after that celebrated iceberg victim had vanished beneath the Atlantic. Or perhaps it was one of those genuine propagation-freaks too easily placed in that same over-burdened category. The fact remains that the rest of the country had to wait until 1962 before viewers could share Mr Walters' amazement at having a TV picture all the way from New York enlivening his living room.

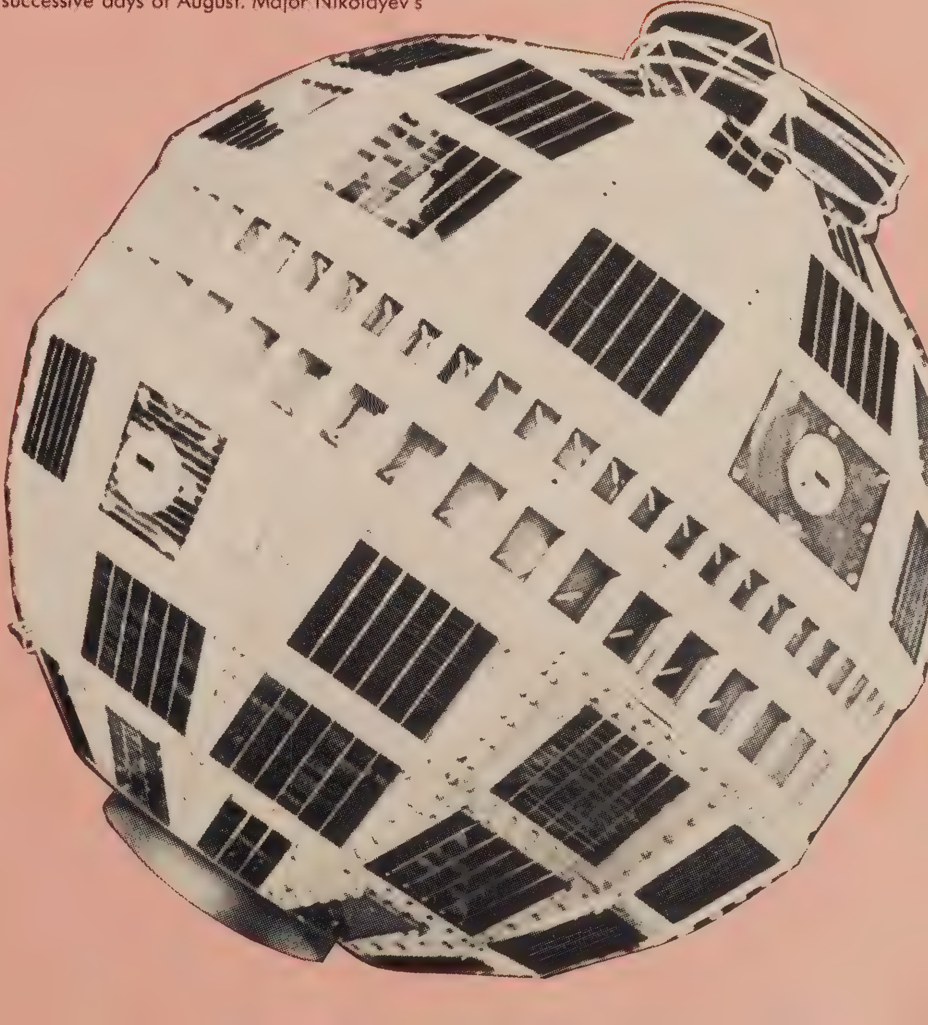
1962 Review: from Tornadoes to Satellite TV

1962 was the year of Marilyn Monroe's suicide; the year when John F. Kennedy, with only 14 months of his life remaining, forced the USSR to dismantle the Cuban missile bases. Above the sound of Spurs fans celebrating their team's retention of the FA Cup and the cries of aesthetes anxious to prevent the Da Vinci "Mother and Child" cartoon from going overseas could be heard (as always) the relentless throb of pop music. With the charts — and the dance-floor — still dominated by the Twist, impresarios were trying to turn trad jazz into a commercial property and those kings of the "instrumental", the Shadows, suddenly found themselves challenged by a new and predictably-elegant combo. The interlopers were called the Tornadoes and the recording which gave them a massive hit on both sides of the Atlantic was a high-pitched, haunting number entitled "Telstar".

That title was gratuitous; just the opposite, for Joe Meek's composition was adroitly referenced towards the very-topical satellite which ushered in transatlantic live TV. With its fluid, vaguely alien treble keyboard melody introduced and terminated by weird fluttering noises suggestive of a small helicopter trapped in a railway tunnel, "Telstar" captured the spirit of the technological genius which inspired it — unlike the dreary ballad "Tell Me, Telstar" which also appeared at this time but mercifully without attracting anything like the same number of singles-buyers. The melody was on everyone's lips, though — by the very nature of pop music — the record's claim to priority was sustained for only a few months. Luckily the achievements and performance of the satellite after which the tune was named not only caught the imagination of the public with equal force but in addition proved to be of a decidedly more durable character.

For above all else 1962 was the year of the Satellite. At least 72 artificial satellites and space probes (military ones included) were successfully introduced into orbit and the "space race" was well advanced, with the USA about to voice its firm commitment to putting a man on the Moon before the end of the decade. That objective looked all the more feasible after John Glenn's three circumnavigations of the globe on 20 February — America's first manned orbital spaceflight, the magnitude of which was slightly diminished after the Soviet Union put **two** men up there on successive days of August. Major Nikolayev's 95 hours in Vostok III looked like becoming an unassailable record — Glenn had only undergone a period of four minutes short of four hours — and to cap it all he was presently joined in his lunar travels by Vostok IV and Lt.-Col. Popovitch. Back came the USA: on 23 April their Ranger IV had become just the second man-made object to hit the Moon (at around 6,000 m.p.h.) and now NASA followed through with the Mariner R-II Venus probe (27 August) and Commander Walter M. Schirra's six-day orbit in a Project Mercury capsule. The public might have been excused for thinking that the once-desolate regions above this planet's surface were becoming as busy as Waterloo Station at the height of rush hour.

Telstar the first satellite to put us in the picture, transatlantic live TV-wise.
Photograph courtesy of British Telecom International



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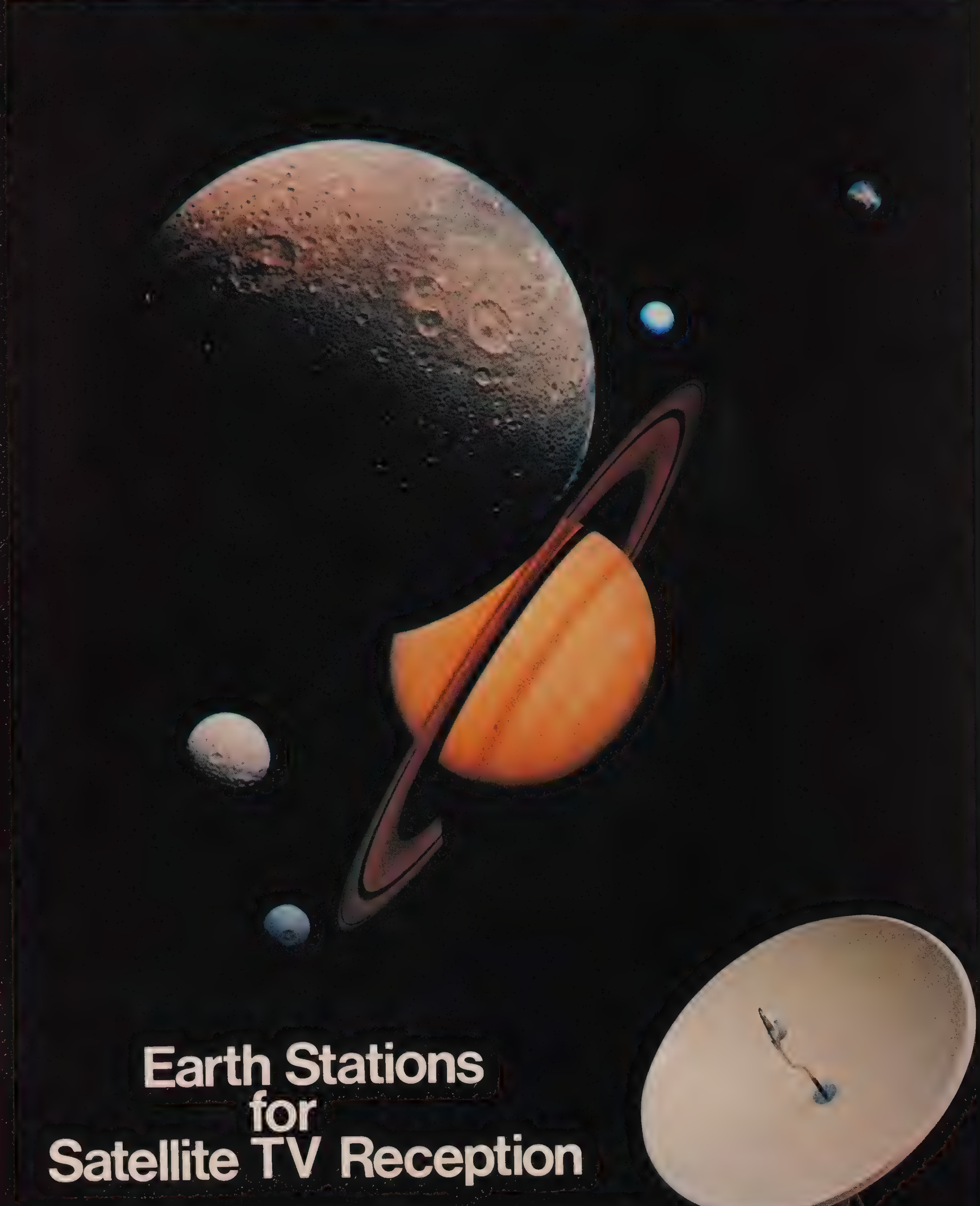
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And in between these sci-fi explorations — to be exact, on 10 July 1962 — Telstar joined the apparently thronging mass of skyborne space hardware. In its way the satellite proved to be the most rewarding experiment of them all, for though the race to the Moon and to distant planets was to continue throughout the decade, Telstar immediately became the inspiration for a sustained effort to introduce innovations in the more down-to-earth field of international telecommunications — and in particular those intimately concerned with satellite television.

Moons, Balloons and Dipoles.

Telstar was a breakthrough — and like all breakthroughs it came as the climax of numerous trial runs. If some of the prototype telecoms satellite experiments make slightly amusing reading today, it's because, prior to 1962, there seemed to be more than one viable method of sending (and receiving) signals across space.

Take for example the distinctly Jules Verne concept of bouncing such signals off the Moon. The Moon is by definition a satellite and sure enough in 1954 the US Naval Research Laboratory used it as a telecoms one, transmitting a voice message off its surface by reflection. Despite problems caused by the uneveness of the lunar surface (leading to poor and variable signals) such tests continued as late as 1960 when an operational communications link between Hawaii and Washington DC was set up via this distant staging-point.

The Moon is perhaps the ultimate "passive" satellite: one which re-routes signals due to some property (mainly, reflection) but which lacks a source of power or the technology to actively amplify or retransmit them. Project West Ford (1958) was again of this type, the single passive satellite being replaced by an orbiting ring of dispersed wires called "dipoles" which reflected the radio waves to and from aligned antennae. The Project really got underway in May 1963 with 20 kilograms of 8GHz copper dipoles orbiting 3000 kms. above the north and south polar regions; again the experiment proved justified because it worked. How the system would have catered for TV transmissions (if at all) is another matter; in any case, by this time passive communications satellites had been rendered largely obsolete by the powerful potential of the active variety.

Even so, another passive 'vbird" of 1960 deserved to be recovered from the mists of time if only because it reveals the ingenious lengths telecoms researchers were prepared to go to develop the design of trans-continental systems. A US engineer named William J. O'Sullivan had devised the idea of a 100-foot (30m) diameter balloon made from the plastic material Mylar to be used for measuring atmospheric density; from this concept and those dimensions sprang Echo I which — coated with aluminium — was launched into a 1000-mile altitude, circular orbit by NASA on 12 August 1960. In fact NASA was heavily involved all the way down the line, paying for the American Telephone & Telegraph (Bell Telephone Lab) terminal at Crawford Hill, New Jersey on the east coast and providing via its Jet Propulsion Laboratory a west coast equivalent at Goldstone, California. Again it was shown the circular orbiting objects make better-than-adequate passive satellites. The giant balloon reflected radio signals well enough for experimental telephone, facsimile and data to be handled; Echo's signals were actually "visible" as far away as Europe, though it was never intended for transatlantic communications.

Echo I had a more important aftermath: passive satellite though it was, it encouraged greater involvement in the more versatile **active** kind. The balloon with its capacity for handling voice and data signals paved the way for Telstar — and television.

Face to Face with F.R. Kappell

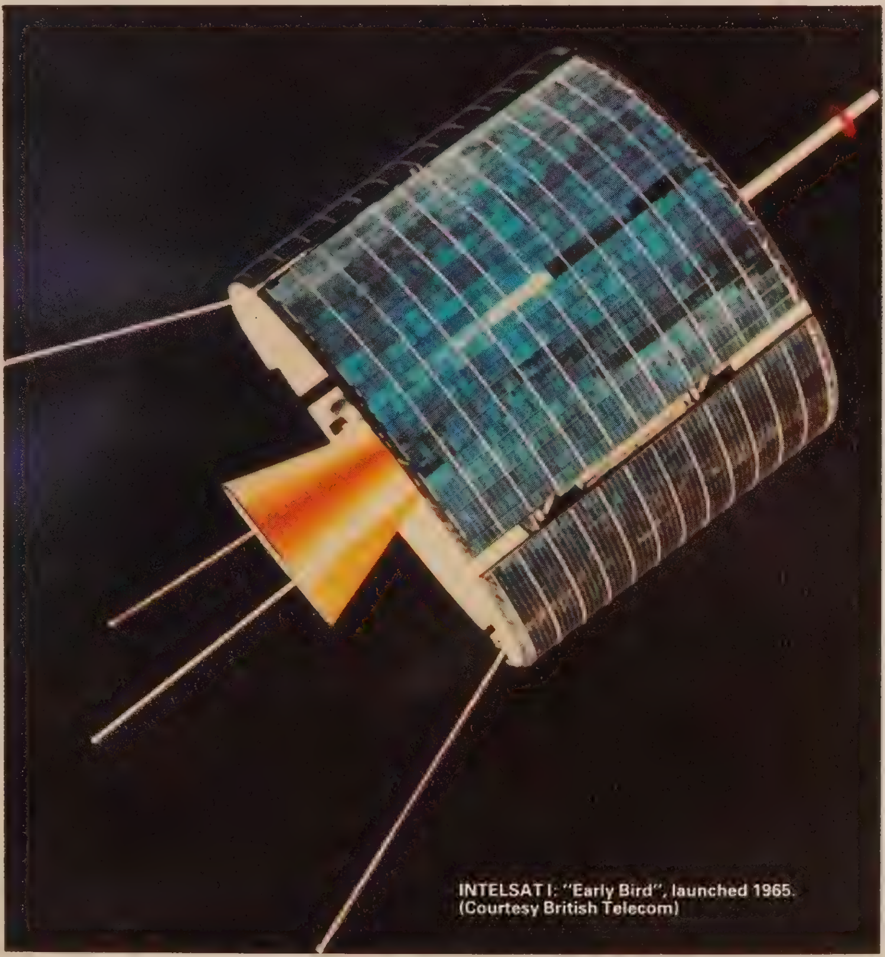
In pre-Telstar days — and for a short time afterwards — the only way for TV administrators to transmit or receive a red-hot news item across the Atlantic was to physically carry it over. Rushing recorded videotapes (such as that showing Princess Margaret's Westminster Abbey wedding) to America by plane was a common enough practice, but one that involved hours of delay between the event and its televising. **Live** coverage was something dreamed about — a vaguely science fiction concept that the Echo I tests seemingly hadn't brought much closer to reality.

But Telstar I, the first commercially-owned satellite ever placed in orbit, took Echo's spherical design and introduced into it a series of refinements that were soon to make coverage of world events *as they happened* the rule rather than the exception. By comparison with the aluminium-coated balloon the satellite was tiny — a mere 32 inches in diameter — but it was powered by solar cells and chargeable batteries; it was an *active* satellite, working at 6.39 GHz on the uplink and 4.17 GHz on the downlink. The Admiralty believed that the valve or "travelling wave amplifier" it had developed to enable Telstar to transmit to the UK's newly-built satellite earth station in Cornwall was the most powerful of its type in the world, with a maximum power output of over five KW at the 6,390 megacycles per second transmitting frequency. In that statement lay another aspect of Telstar's significance. The three-way international project (France, the USA and Britain) not only served as the first practical demonstration of transatlantic television by satellite, but focussed attention on a so-far obscure corner of southwestern England whose name was shortly to become synonymous with advanced telecoms ventures: Goonhilly Downs.

It was through the 85-foot diameter dish aerial later to be designated Goonhilly I (and subsequently devoted to service in the INTELSAT system) that live-from-America television found its way into Britain. Not that the first historic transmission was an unqualified success; by modern standards it was rather unsatisfactory and even by those of the 1960s fell a long way short of what viewers wanted and perhaps had been led to expect.

Today's telecoms satellites pursue fairly strict geostationary orbits, more or less keeping pace with Earth's rotation and thence "fixed" in position some 22,300 miles above it. This was not the case in the early days of satellite experimentation; whatever their purpose (military, telecoms or meteorological) the birds' orbits were far lower — between 600 miles perigee and 748 miles apogee for the US Army Signals Corp's Courier, 1000 miles (circular) for Echo I and so forth. In practical terms this meant that the satellites gave the impression of "whizzing" across the sky, remaining "visible" to individual receiving or transmitting aerials for a trifling matter of hours — or even less. High altitude, geostationary orbits awaited the development of launch technology sufficiently dynamic to get the satellites up there in the first place.

Telstar, being a product of the same performance-concept, orbited the Earth at altitudes varying between 568 miles at its closest approach (perigee) and 3,378 miles at



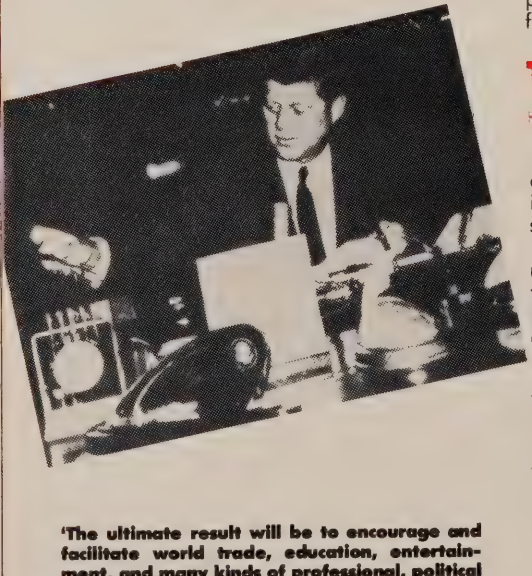
INTELSAT I: "Early Bird", launched 1965. (Courtesy British Telecom) its outermost limit (apogee) and in only three hours — which meant that it was visible to the three earth stations concerned for just 36 minutes at a stretch. Naturally, this limitation exercised an irresistible influence upon TV programmers — whatever they decided to put out or receive over the Atlantic obviously must not exceed that 36-minute allotted time-duration. Not only was Telstar's transit across the sky speedy, it was also prone to minor variations or fluctuations of orbit. Both factors posed a severe challenge to Aerial I's precision-tracking and at one stage it seemed that the challenge was almost too great to overcome.

On 10 July Telstar commenced the first experiments in active satellite telephony *and* television transatlantic transmission when signals from US earth stations at Andover and Crawford Hill (the custom-built Echo I station) were received by Pleumeur-Bodou, Brittany. The UK had to wait a few more hours before the first live American TV pictures hit its screens.

This duly happened at two minutes past 1a.m. on 11 July 1962 just as Telstar made its sixth sweep over the North Atlantic, when the blurred and scarcely recognizable visage of F.R. Kappel, Chairman of AT&T (the company that built the satellite and paid NASA around three million dollars to launch it) was seen on British television. Though admittedly experimental, the epoch-making transmission was hardly of a kind to encourage wild enthusiasm. Goonhilly officials confessed to some disappointment; **The Times** went a good deal further, calling the experiment an 'almost total disaster' — though it also had the foresight to add that nonetheless it presaged a worldwide telecoms satellite network in operation by 1972. How many British viewers actually stayed up to witness the at-best partial success is hard to evaluate; no doubt many were content to wait until BBC and Associated Rediffusion's breakfast-time repeats of the American transmission.

The Goonhilly Late Night Show

Perhaps the disappointment was aggravated by the fact that Pleumeur Bodou had received excellent image and sound clarity. This had the inevitable result of drawing criticism upon Goonhilly, the aerial design of which had dispensed with the usual protective radome in favour of an open-to-the-sky profile. In particular it was alleged that the aerial had proved unable to adjust to Telstar's departures from its predicted orbit — a charge rapidly shown in itself to be "off-beam" when relatively minor adjustments to the antenna's steerage system provided the clean-cut, steady pictures which reached Britain over the next few days.



'The ultimate result will be to encourage and facilitate world trade, education, entertainment, and many kinds of professional, political and personal discourses which are essential to healthy human relationships and international understanding' –
John F. Kennedy signs the Communications Satellite Act of 1962.

Petty bickering and mutually unprofitable rivalry between the Anglo-French partners bubbled in the wake of that less than stunning success, but any question of British pride was definitely assuaged during the first-ever east-to-west live TV transmission on 12 July. To mark the occasion the French had put together a special pre-recorded variety show: commendable, but hardly spontaneous. By contrast, the British transmission, live from inside Goonhilly Downs itself, had little other than spontaneity in its favour. As the "show" went out at 3.30 a.m., it consisted chiefly of technicians seated at their control-points and doing nothing more entertaining than getting on with their jobs. But the American press was delighted: such unplanned, unrehearsed scenes, they evidently felt, were what live satellite television was all about.

Of course, even so convincing a display of spontaneity was insufficient to commemorate the birth of a new dimension in telecommunications and the official inaugural two-way broadcast was both more formal **and** a more accurate taste of what the future held. The exchange transmission of 23 July divided the available 36 minutes' TV time equally between Europe and North America. Thus an estimated TV audience on those continents of some 200 million were taken to a press conference where President Kennedy announced that the dollar would not be devalued and then successively to baseball in Chicago, **Macbeth** on stage at Stratford, Ontario and (an apposite touch) to meet former cosmonaut John Glenn as he talked against a Cape Canaveral backdrop. Not to be outdone for scene-setting, the European contribution opened with anchorman Richard Dimbleby silhouetted by Big Ben as he introduced American watchers to 'your first view of our continent'. This view was necessarily highly selective, comprising as it did live shots of reindeer in northern Sweden, Sicilian fishermen, Parisian papers going to press, the launching of the Lizard lifeboat and finally the Hovercraft on Southampton water.

Towards the Moon – and INTELSAT

"Historic but somewhat contrived" was how one commentator was later to describe that inaugural transatlantic TV exchange; subsequent special editions of BBC's "Panorama" and the ITN News bulletins were more effective, yet it seemed that between the futuristic implications of Telstar and the programmes it actually carried there was a certain credibility gulf. **The Times** applauded it as telecoms advance perhaps second only in importance to the invention of wireless, yet did Telstar's live coverage of the Schirra space-mission in October *really* gain in immediacy or drama upon that of the comparable Glenn flight some eight months before, when the BBC had flown in a tape from America after the customary manner? Nonetheless, the future of live transatlantic television was pretty obviously satellite-shaped....

That future of course involved a second Telstar, but there were yet other options to explore. Although 1963 saw markedly fewer satellite launches — NASA, for instance, only put up ten and the overall US total was 38 — it was a major year for the telecoms species.

Relay I, another active satellite, had been scheduled for launch on 13 December 1962 but power supply problems meant that its experimental communications programme had to be carried over into the following year. Built for NASA by the Radio Corporation of America (RCA), the 172 lb. satellite abandoned the popular spherical design for an octagonal one, measuring 33 inches in height by 29 at the widest point of its breadth; transmission power was 10 watts and its tests (which included more transatlantic TV) were carried out at 1.725 GHz on the uplink and 4.17 GHz on the downlink. Relay's elliptical orbit carried it to within 817 miles of the Earth's surface at perigee and 4,611 miles from it at apogee.

Syncom was another project which came good after running into initial problems. The first in the series failed just before final orbit on 14 February 1963, so it wasn't until five months later that the world got its first synchronous communications satellite in working order and when launched by NASA on 26 July it assumed the 22,300 mile altitude which later became an accepted operational orbit-height for the INTELSAT range. Syncom, the brainchild of the Hughes Aircraft Company's Harold Rosen, was a drum-shaped cylinder 28 inches in diameter, 15½ inches in depth and 79lbs. weight minus fuel; more particularly, it was designed to be in the shadow of Earth for only one per cent of its time, allowing the manufacturers to dispense with storage batteries and to rely on the 3,840 solar cells on its surface to generate the 20 watts electrical output. In addition to two transmitters operating at 1,815 megacycles/second frequency and each radiating about two watts, it emitted a 100 mw. tracking signal. Syncom II was primarily used for two-way telemetry and telephony message experiments, but its successor (launched 19 August 1964) became the first telecoms satellite to carry live transpacific TV pictures for any appreciable duration when it was called upon to cover the Olympics from Japan.

In the meantime another Telstar was bringing European viewers the delights of transoceanic television. Launched on 7 May 1963 from Cape Canaveral, Telstar II's elliptical path was so managed that it gave an almost 50% increase in mutual visibility to both continents on each of its orbits and the improved technology included transistors enclosed in an evacuated container which rules out the ionization which had formerly affected the command circuits, yet it weighed only about three pounds more than its predecessor. By the time it had completed 23 complete orbits in a 34-hour span, Telstar II had brought Europe live TV pictures of Major L. Gordon Cooper taking part in the USA's fourth manned orbital spaceflight — at the same time confirming Man's determination to set foot on that greater satellite, the Moon and heralding the imminence of an international telecoms satellite system which was to come into being with the formation of INTELSAT two years later.

'The ultimate result will be to encourage and facilitate world trade, education, entertainment, and many kinds of professional, political and personal discourses which are essential to healthy human relationships and to international understanding.' So declared John F. Kennedy as he signed the Communications Satellite Act of 1962, the year when transatlantic television ceased to be merely a dream. Telstar was an integral part of the future envisioned by the American President: sadly but in some ways fittingly, it was the lot of Telstar II to carry pictures which defied a yawning gulf in international understanding when it handled the first direct USA-USSR television transmission in November 1963 — the occasion being the assassination of President Kennedy.

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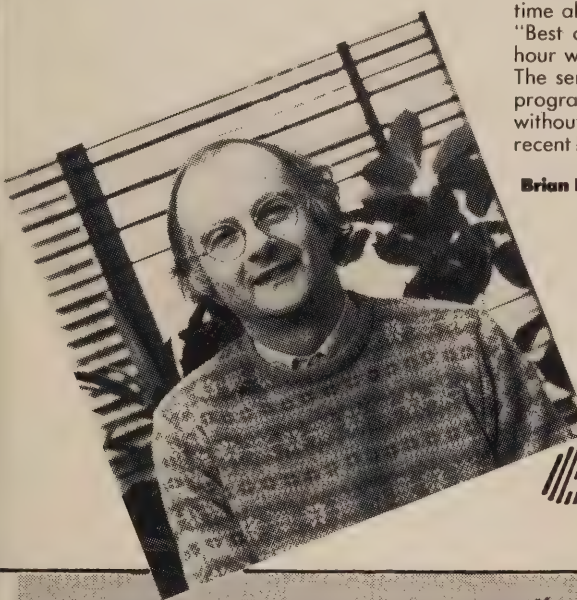
BRIAN HAYNES TELEVISION

Satellite Television's mentor Brian Haynes has certainly created history by bringing to Europe the first Satellite television station this side of the Atlantic. Over the past eighteen months the realisation of the Haynes' Dream was reinforced with massive pre-launch enthusiasm from the media, yet on Day One there was no razamataz. After months of test transmissions Satellite Television plc opened on Monday 26th April without the blaze of publicity which such a land mark deserved. Were the press radio and television ignoring this new service mindful of it's potential future competitive threat? Not so, because if your mind stretches back six months you'll remember that the British Tommy was up to his neck in muck and bullets on the Falklands, and nothing happened elsewhere in the world except of course in the Middle East.

For the first three months of broadcast Satellite Television's programmes were viewed by a potential cable audience of ¼ million. These priveledged few, located in Malta, Finland and Norway were for the first time able to enjoy a daily 2 hour diet of the "Best of British", interrupted three times an hour with commercials, mostly multinational. The service is a truly English experience. All programmes are in English, un-dubbed and without subtitles. Most are provided from recent ITV archives. The commercials too are in English, and most are those already known to the British viewer. There are some interesting aspects of Pan-European commercials. There is the delight of a viewer in Malta being able to watch a commercial which instructs him how and where to hire a car the next time he's in Helsinki, and as the service is an English language one, the voice over is in "Finglish". For the first three months the commercials were "right off the bottom of the rate card". Freebies to intice the advertiser to seriously consider this potential blockbuster.

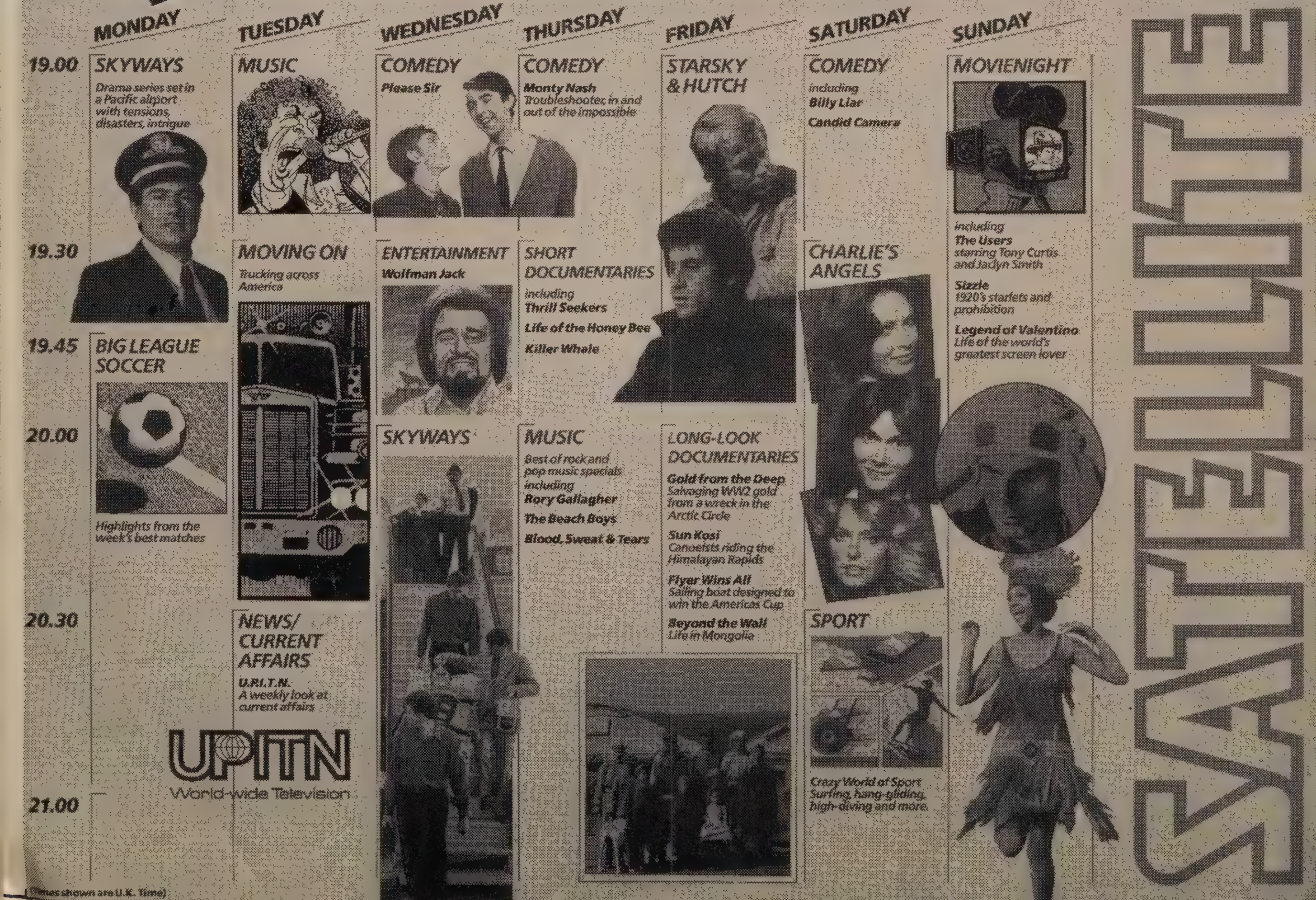
With a new territory under his belt (Switzerland) Brian Haynes can now sell "on the rate card", and his slots are full. He points at a major stumbling block to truly international television apart from the obvious one of across territory copyright. Advertisers, their agents and their agencies all have to be re-educated when it comes to footing the bill for commercials. Everyone is keen to advertise, but when it comes to paying up, or to be more fair booking the airtime, which territory accepts the responsibility. From who's budget is the cost deducted? Haynes gives the example of a multinational who were in-from-the-start with support for the new station, but it took them eighteen months to apportion the invoice for a handful of 30 second slots.

Brian Haynes is more unassuming than expected. Obviously proud of what he has achieved, he is reluctant at this stage to make a song and dance about "Satellite Television". He points to the fact that if OTS blows up, and there's no back up satellite in orbit, then he'll be off the air for at least a year. "There's no point in blazing a trail at this point with the threat of technical extinction over the



Brian Haynes

super station europe



	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
19.00	SKYWAYS *Drama series set in a Pacific airport with tensions, disasters, intrigue*	MUSIC	COMEDY **Please Sir**	COMEDY **Monty Nash** *Troubleshooter, in and out of the impossible*	STARSKY & HUTCH	COMEDY *including* **Billy Liar** **Candid Camera**	MOVIENIGHT *including* **The Users** *starring Tony Curtis and Jaclyn Smith* **Sizzle** *1920's starlets and prohibition* **Legend of Valentino** *Life of the world's greatest screen lover*
19.30		MOVING ON *Trucking across America*	ENTERTAINMENT **Wolfman Jack**	SHORT DOCUMENTARIES *including* **Thrill Seekers** **Life of the Honey Bee** **Killer Whale**		CHARLIE'S ANGELS	
19.45	BIG LEAGUE SOCCER *Highlights from the week's best matches*						
20.00			SKYWAYS	MUSIC *Best of rock and pop music specials including* **Rory Gallagher** **The Beach Boys** **Blood, Sweat & Tears**	LONG-LOOK DOCUMENTARIES **Gold from the Deep** *Salvaging WW2 gold from a wreck in the Arctic Circle* **Sun Kosi** *Canoeists riding the Himalayan Rapids* **Flyer Wins All** *Sailing boat designed to win the Americas Cup* **Beyond the Wall** *Life in Mongolia*		
20.30		NEWS/ CURRENT AFFAIRS **U.P.I.T.N.** *A weekly look at current affairs*				SPORT **Crazy World of Sport** *Surfing, hang-gliding, high-diving and more.*	
21.00							

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**Scientific
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Communications**

Satellite Television PLC's receiving dish on Satellite's roof

horizon." He's also almost nervous of predicting the future for his station. "At present we're doing things step by step. By the end of the year we'll have a million viewers in possibly six countries, perhaps more." When asked if he's interested in the British audience he is similarly cautious. "Our signal is coded, so that means even an enthusiast with a parabolic antennae cannot watch. De-coders are strictly allotted to those cable operators who have government approval to relay the service. At present much of our programming is supplied by the ITV companies, so we wouldn't want to compete with them, and they wouldn't like it. Besides, more of the same is not what satellite television in any form should become. But the future — who knows? The cable companies will only be able to expand if they are allowed to offer additional services, and additional services are economically made available in the States by satellite, so there's no reason why the same shouldn't happen over here."

Talking of Direct Broadcasting by Satellite (DBS) Haynes added that he didn't see it starting in the UK much before 1987, and late 1984 as far as the French and Germans were concerned, and even then he didn't expect there to be a florish of interest in small disc antennas. "That will all be taken care of by the cable operator, except in the rural areas. And again, it's a more of the same situation".

Since opening the station Brian Haynes has received de-coder requests from almost every avenue in the business. The Arabs are very interested in Satellite Television, and the oil rig people too. Oil Rig folks in the Norwegian section, could be given a decoder if they so wished to reveive the service, but those in the British sector are governed by the controls at present exerted by the British PTT, and as such are not allowed to watch, even though they are too far out to sea to receive the UK terrestial broadcasts. In Copenhagen, the French Embassy has an antenna to watch the French National Network's OTS transmissions to North Africa. The British Embassy across the road however cannot tune in to Satellite Television. British Embassies and their staff come under the controls of the British "licence".

In Europe there are 30 million homes wired up to some kind of cable system according to Haynes, but he's quick to point out that only 2/3rds are similar to our "Rediffusion" system. The rest are blocks of flats, and small community linkups which might not be in a financial position to afford the £6,000 + required to purchase and instal a Satellite TVRO system. The future relies on the development and mass production of good, efficient 2 meter antennas. "We are looking to the future when we will be a non-coded service. Our subscribers do not pay for our service, as we are a commercial station, so there will be no need for costly de-coders which are currently priced at around £3,000!! Again too expensive for the small community systems to afford. And if each new satellite service required a different antenna, and another decoder then only the big cable operators could even consider the expense."

When Brian Haynes first conceived SATELLITE TELEVISION his operation consisted of himself and a secretary. Last May (1981) they started their first test transmissions, and in February of this year began a nightly one hour warm up to day 1, April 26th. Now twenty staff are accommodated on a single storey of Craven House discreetly located in London's West End. Haynes has the right with the owners of OTS to expand his service to fill a full 50 hours of transmission each week, but for the time being "small is beautiful".

Todd Slaughter

Satellite Television presenters (L to R) Amanda Cuthbert, Miles Fothergill and Sally Harrison.

Amanda Cuthbert

Amanda Cuthbert was born in Lancashire and went to school in London and Minneapolis. She has had all kinds of jobs, including accountant in the local dairy and P.A. to an M.P. in the House of Commons.

She has worked as an actress in theatres all over England and in London's West End appeared as 'Maddie' in Tom Stoppard's DIRTY LINEN and 'The Duchess of Gloucester' in CROWN MATRIMONIAL.

She has also worked in radio, being a regular in the popular series, WAGGONERS WALK, and in television has mainly had comedy parts, with the exception of 'Molly' in TINKER TAILOR SOLDIER SPY.

Amanda's hobbies include squash, tennis, travel, reading, writing, playing piano and growing things.

She lives in North London with husband and cat.

Sally Harrison

Sally was born in Shoreham Sussex. She began her career as a child actress in Brighton at the age of 12 in Pantomime at the Brighton Hippodrome. The following year played Pantomime again at Bournemouth. After attending The Brighton and Hove Stage Educational School and The Phildene Stage School in London she toured the country several times in several different plays before leaving for Europe at the age of 18 to skate in Holiday on Ice. This lasted for a year after which she returned to England and acting.

Sally has appeared in many films, on television and theatre including:

As Susan Fischer C.I.5. agent in "The Professionals" for L.W.T.
As Pascale de Baillot in "Felix" a "Crime of Passion" for A.T.V.
As the leading Lady "Susan" in "High Infidelity" with Leslie Crowther and has also toured Holland playing "Greta" in "Caught on the Hop".

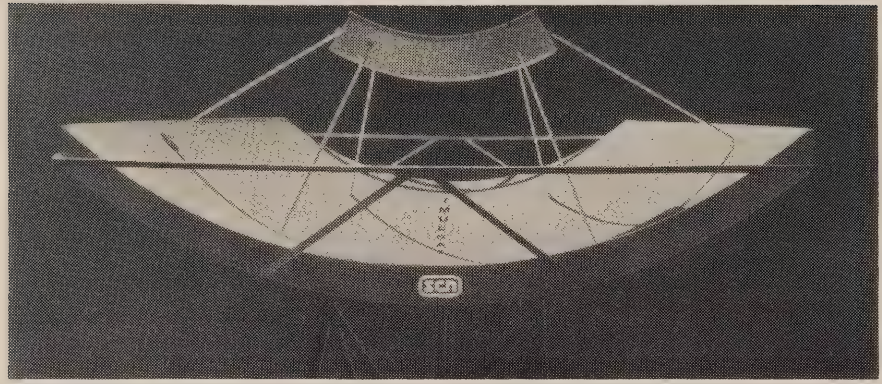
Apart from acting and ice-skating, Sally rides and has her own horses kept at her mothers livery stables in Steyning Sussex.

Sally is married to Film Production Designer, Tony Curtis, and they have a daughter, Candice.

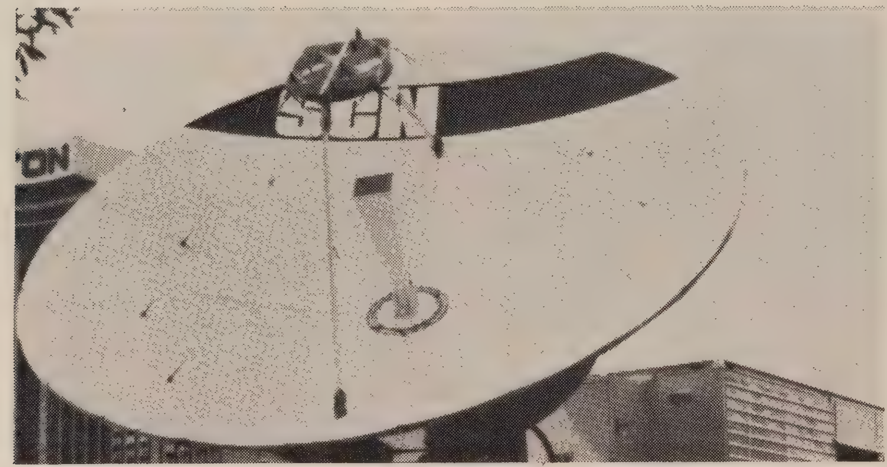
Miles Fothergill

...was born in the Lake District and was educated at Rossall School in Fleetwood. He trained for the stage at the Webber Douglas Academy of Dramatic Art and has subsequently worked extensively in many areas of the business. His T.V. credits include 'Lorna Doone', 'Dr Who', 'Cheri', The Edwardian's Series, 'Blakes 7' and he played Mason, the station P.C., in the whole of the last Francis Durbridge series 'Breakaway'. Miles has just been in a new B.B.C. series called 'The Olympian Way', a comedy set in a provincial health club. In the threatre he was the second to play the part of John/Judas in the original production of 'Godspell' at the Wyndham's, for a while opposite David Essex. He played Rocky in 'The Rocky Horror Show' for two years, 'Inferno' for Peter Dews at Greenwich, 'The Rose and the Ring' also at Greenwich and also appeared in the revival of 'The Maid of the Mountains' at the Palace. He has appeared at the famous Players' Theatre and as a leading production singer with such names as Max Bygraves, The Bachelors, Roy Castle and Mike Yarwood. For a year he was leading man at London's Stork Room Club. Along with all this he has done his fair share of fringe and lunchtime theatre. Last year Miles worked on the now legendary film 'Heaven's Gate'.

WHAT'S UP IN DENVER : SCUC 1982



SIMULSAT



With the rapid growth of interest in Satellite & Cable communications in this country it was a pity that British attendance at the Satellite Communications Users Conference in Denver was so poor. In fact the only Britons actively present were Owen Patterson from Visnews and Geoff Burling from March Microwave. (Owen Patterson expects to speak at the Denver conference next year, on Global Video conferencing).

Among key issues at the conference were signal scrambling, 2 degree spacing and the A T & T monopoly case. Some of the most impressive presentations were on video conferencing with participant speakers beamed in from Washington and other cities. Video conferencing looks like being a growth area in the next few years.

The exhibition comprised over 120 stands, rapid growth from the 1st SCUC four years ago when only 12 companies exhibited. Awareness of the British market among American manufacturers generally varies from low to non existent. However some companies see European growth occuring very quickly and are looking to be market leaders. The following companies would welcome enquiries from European enterprises interested in import, distribution and dealerships:

LSI Industries
P.O. Box 347
108 Saunders Ferry Road
Hendersonville
Tennessee 37075
615 822 5737 contact Bill Little

Commercial & Consumer receivers with built in RF modulator.

Tulsat Corporation
1839 North 105 East Avenue
Tulsa
Oklahoma 74116
918 836 8348 contact Mark Russell

Total Satellite systems using 10' & 13' antennae. Good quality mid price range product.

Paradigm Manufacturing Inc
6911 Eastside Road
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916 244 9300 contact David P Johnson

12' Paraclipse High Performance Satellite Television System. Aesthetically one of the most attractive antennae available to the home market in the low to mid price range.

Antenna Technology Corporation
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Las Vegas, Nevada 89109
702 733 9658 contact Peter Nelson

Simulsat. A multi beam antenna. 3, 5 & 7 metre sizes for the commercial and cable market. Able to receive both 4GHZ & 12GHZ signals. Easily the most impressive piece of equipment at the Denver show.

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27 Bonaventure Drive
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408 262 3100 contact Bill Gibb

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Cable or Satellite?

Will it be the bout of the century?

David Lazell looks at the growing arguments and the prospects of the 1982 Hunt Inquiry on Cable Television.

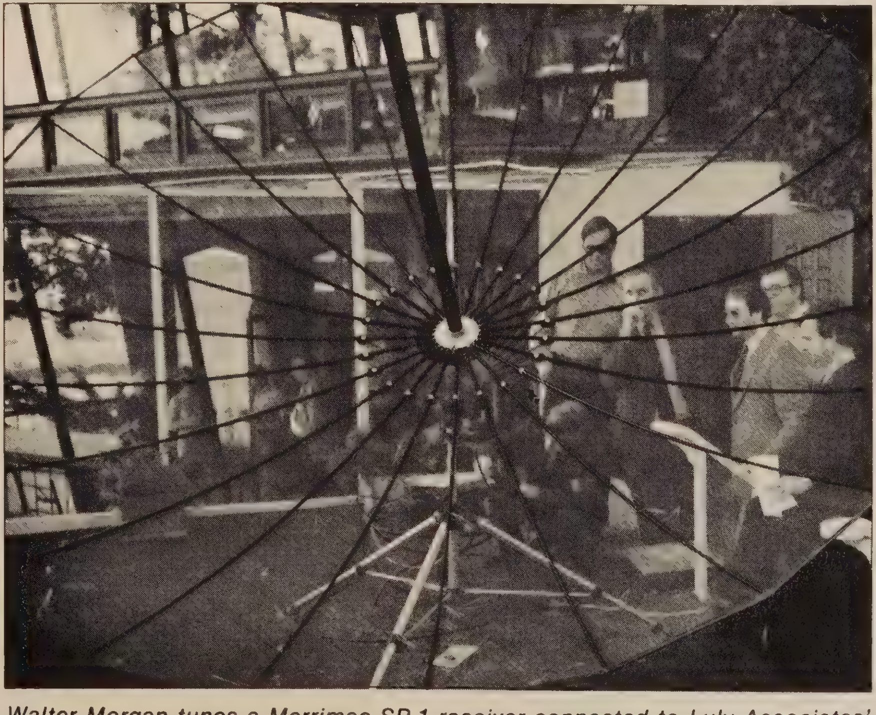
The signals today are coming thick and fast, and not from the satellites. These signals represent the response of the citizens to the current possibilities for cable and/or satellite broadcasting, and involve trade unions, businessmen, broadcasters and, naturally, the politicians. If you were able to capture all that excitement in a TV series, you would certainly get to the top of the ratings in no time!

Sometime, by the end of September, the government Hunt Inquiry on the implications of cable technology on broadcasting will be published. The Inquiry, headed by Lord Hunt of Tanworth, was set up following the report of the Prime Minister's Information Technology Advisory Panel (ITAP). Though obviously destined to be a milestone on the road to a new era of television, the Hunt Inquiry will create a great deal of controversy. Even the original ITAP Report had its critics, evident in the parliamentary Debate on April 20th and certainly evident since then. Almost from the outset, arguments on private and/or public involvement in cable divided the politicians. One Parliamentarian warned against 'allowing ourselves to be stampeded into ill-considered action by vocal and impatient industrialists'. The ITAP Report was also considered, by another speaker, to be 'a major let down'. He added, 'It is simply a rationalization on the part of those who want to make money out of the private exploitation of an area which should be developed for the public good'. And so on. Whilst the cable TV advocates believe with good reason that Britain has for too long evaded making hard decisions, others argue that the government is moving too quickly. The electronics entrepreneurs, representing some of Britain's best known companies, can hardly be blamed for pointing to the further cost of delay. Somehow, the Hunt Inquiry has to find a realistic, happy compromise between conflicting points of view which, to some extent, go to the traditional divisions in British political life. It's a thankless task, though we have no doubt that the end product of the Inquiry will be a happy one (whether or not all actually agree on it, when the report appears).

Hard on the heels of the submission of the ABS (Association of Broadcasting and Allied Staff) to the Hunt Inquiry, the TUC at the beginning of June produced its own arguments.

Most of the ABS members work for the BBC (i.e. between 12,500 and 13,000 of a total membership of over 15,000) so it is hardly surprising that the submission looked for the continuing supremacy of the BBC in broadcasting arrangements. The controls now placed upon the BBC and IBA stations in terms of programme content, balance and control of advertising, etc. should be maintained, with new broadcasting services subjected to similar criteria, albeit by a new publicly accountable body. The ABS also argued that cable companies should still be required to relay the BBC and ITV services, together with new services. Further, the primary aim of broadcasting, to reflect, protect and strengthen the prevailing culture and national way of life, should be maintained. A public authority would be vital to avoid all the abuses that might follow an unregulated system governed by the desire to make money. The percentage of foreign made programmes in the total output of cable programming should be no greater than that currently the case with BBC and ITV schedules. In short, the ABS (like viewers, we imagine) do not want a further flood of low cost, shoddy and job-diminishing TV soap operas and other shows bought in to fill up the time. But perhaps the most interesting comment of the ABS submission was that the timetable for the Inquiry was 'totally inadequate if there is to be proper public discussion'. The comment was echoed by the TUC submission at the beginning of June, which accused the government of too narrowly setting the work of the Inquiry. There was, suggested the TUC, little government interest in the implications of cable broadcasting and communication on jobs, for example, or finance, or on the public sector. The impression, during the summer, was that the original ITAP Report was 'a rush job' and that the Hunt Inquiry looked like being little better. But that is hardly surprising, and certainly not the fault of the diligent men involved in the deliberations. Britain has an excellent record in aspects of space communications technology, much of which has been reported in 'Satellite TV News'. But the political initiative required to provide Britain with an advanced cable communication system has been lacking. To some extent, the delay was understandable. Britain's citizens, with few exceptions, were able to obtain good television reception with the basic rooftop antenna, with perhaps an amplifier on occasion. The arguments for cable beyond the reception of BBC programmes, were confined to relatively few people, and Parliament always had plenty on its mind, during the past fifteen years or so. Thus, the ITAP Report had to grapple with a suddenly fast-flowing tide of interest, based on developments in Western Europe. If Britain wanted to get its due share of space communication business, it had to move into the satellite era. And this applied perhaps more to business needs than to home-based services, video or computer. Had the ITAP had more time, it could have dealt with wider issues. But, in most cases, government committees never have enough time. In this case, the decisions were wanted 'yesterday'.

"Why did ITAP feel able to proceed on its conclusions without the opinions of consumer groups which have views on the massive expansion of the services cable offers, of the TUC and unions which represent the employees who would instal and operate the cable systems, and of the Manpower Services Commission, whose views are needed on the manpower training and education issues for the labour market?" The question, raised in the TUCs preliminary statement on cable, submitted to the Hunt Inquiry at the beginning of June, was accompanied by a defence of British Telecom's status in this field. As a public authority, British Telecom should be at least heavily involved with the installation of new cable networks. Preferably, British Telecom should provide the cable network, and, as owner, maintain it. A public regulatory authority would lease the cable network, and issue renewable franchises to programme contractors, many of whom might represent local monopolies (hence, the need for legal requirement to transmit BBC and ITV channels). Thus, as with existing commercial radio and television, answerable to the Independent Broadcasting Authority (IBA) the



Walter Morgan tunes a Merrimac SR-1 receiver connected to Luly Associates' mesh antenna at Satcom 82, as Don Dement and others look on.

cable users would have franchises for definite periods, and would then have to compete with other contenders for the 'new' franchise at the end of a five year or other period. The cable operators would have to observe basically similar criteria as those now applied to commercial radio and television. However, whilst cable TV should meet these accepted obligations on programme content, quality, balance and range of subject matter, etc., there could be new opportunities for minority groups. With the wealth of possibilities created by cable, new forms of broadcasting, or narrow-casting, could be developed, and in that, a better democracy created. This is a little like the old arguments about really effective public access to the electronic media, of course. Tony Benn, for example, took some considerable time to raise these issues some years ago, long before cable made the possibilities so evident.

The TUCs submission raises some very important points. The very worst scenario for the future would be a situation in which bad feelings, public controversy, labour disputes and even allegations of scandal, accompanied the new cabling of Britain. But we can be more optimistic, since it is very unlikely that any kind of free for all will be permitted, though private capital will probably be encouraged to take a major role in the new cable initiatives. When ITAP was appointed in July 1981, its task was to include that of ensuring 'that Government policies and actions are securely based on a close appreciation of market needs and possibilities'. The six members of the Panel included : Mr. J. Aldrich, Managing Director of Rediffusion Computers; I.H. Cohen, Managing Director of Mullard; C.A. Davies, Managing Director of Information Technology; D.F. Hartley, Director of Cambridge University Computing Service; C.N. Read, Director of Inter-Bank Research Organization, and C.G. Southgate, Chief Executive, Computer Services Division, British Oxygen Company.

The report to the government was based on work done by a working group from the full panel. However, the whole panel endorsed the report, which appeared in the March of this year. The view of the business executives on the panel was abundantly clear. Britain had to make some strategic and long-term decisions quickly, if we were not to be left out in the cold, as far as the commercial possibilities were concerned. All electronics business is international today, of course, so that a nation that fails in its own investment opportunities inevitably creates its own business decline and import penetration.

The experiments into pay TV (subscription TV) by cable, authorized by the government in the spring of 1981, were considered some three years too late. Outside the panel, some cable specialists would probably say that three years was a considerable under-statement. Britain could enjoy the fruits of the new electronic industrial revolution, based on fibre optic cable communication, with likely financing of private capital, given the right economic environment. But, the Report emphasised, 'a delayed decision will be the same as a negative decision'. Broad outlines of the government's plans should therefore be available, to act as a framework for commercial decisions and planning, by the middle of 1982. Detailed proposals on the administration and regulation of cable systems would be needed soon afterwards, and in any case no later than the beginning of 1983. Inevitably, the businessmen seemed to be called the tune, though the report, published by the H.M.S.O. ('Cable Systems', £3.60, March 1982) was realistic enough. The arguments will be familiar to regular readers of 'Satellite TV News', and need little repeating here. After long years of keeping a brake on cable development, the government jumped on the accelerator. In the process, a lot of people, including the TUC, were not sure who was holding the road map, or even if it was the right one.

To the burdgeoning number of VCR users, renting videotapes for a quid or two a day, in order to avoid the awesome number of repeats seen on BBC this summer, the prospects must seem theoretical. The promises of the politicians never seem to work out as well as originally stated, and whilst this may not be the fault of those hard working Parliamentarians, the truth remains that many video enthusiasts really wonder if satellite and/or cable services will usher in the golden age of entertainment. And even if we settle all the arguments about the cable networks — themselves calling for the wisdom of Solomon — where will all the new programmes come from?

Look at the programme schedules for the U.S. satellite network and you will find a good staple fare of feature films, on a pay TV basis. But often the same film is shown several times during a week's segment, so facilitate viewing time choice. Whilst the late night B Westerns, sometimes showing through the very early morning, would certainly enjoy a renaissance here, too, other old movies on the satellite services are astonishingly old, including long-forgotten 1930s British productions not even shown on BBC. In fact, some of the old 1930s British films are described in singularly glowing terms, to the point that I feel inclined to move to some part of the States where one can see these. But they would not be considered worthy fare for the sophisticated 1980s British viewer. As for the deluge of European TV programmes, including many from France, whilst these are acceptable, they would probably be resisted by both consumers and broadcasting trade unions here, on any regular schedule basis as an option to British products. Channel Four, Britain's second conventional commercial TV channel, is to start in November, and will include great nostalgia television in its schedules. With TV-AM, breakfast commercial TV, starting some three months earlier than originally agreed, i.e. in February instead of May 1983, British viewers will be seeing more programmes, in any case — or at least enjoy more choice. But as these extra commercial services will stretch somewhat thinly the available advertising income, it may be that minority interests will suffer, certainly when further services appear. As more competition for audiences appear, so the major networks will feel that they have to keep as large a percentage of their traditional audience as is possible. Minority interest programmes may be dropped on the reasoning that 'once most viewers switch to one or the other channels, they won't switch back'. Where a network can, within the usual variations, plan on the basis of a reasonably assured income, it can take a few chances with minority audiences. It would be one of the ironies of the new television era if with more television, there was less choice, simply because the resources were not available to back the technology. Remember that some hospital wards are closed today, not because there is anything lack in the hospital services, but because there is no money to pay personnel. That could be the crunch that is coming with cable.

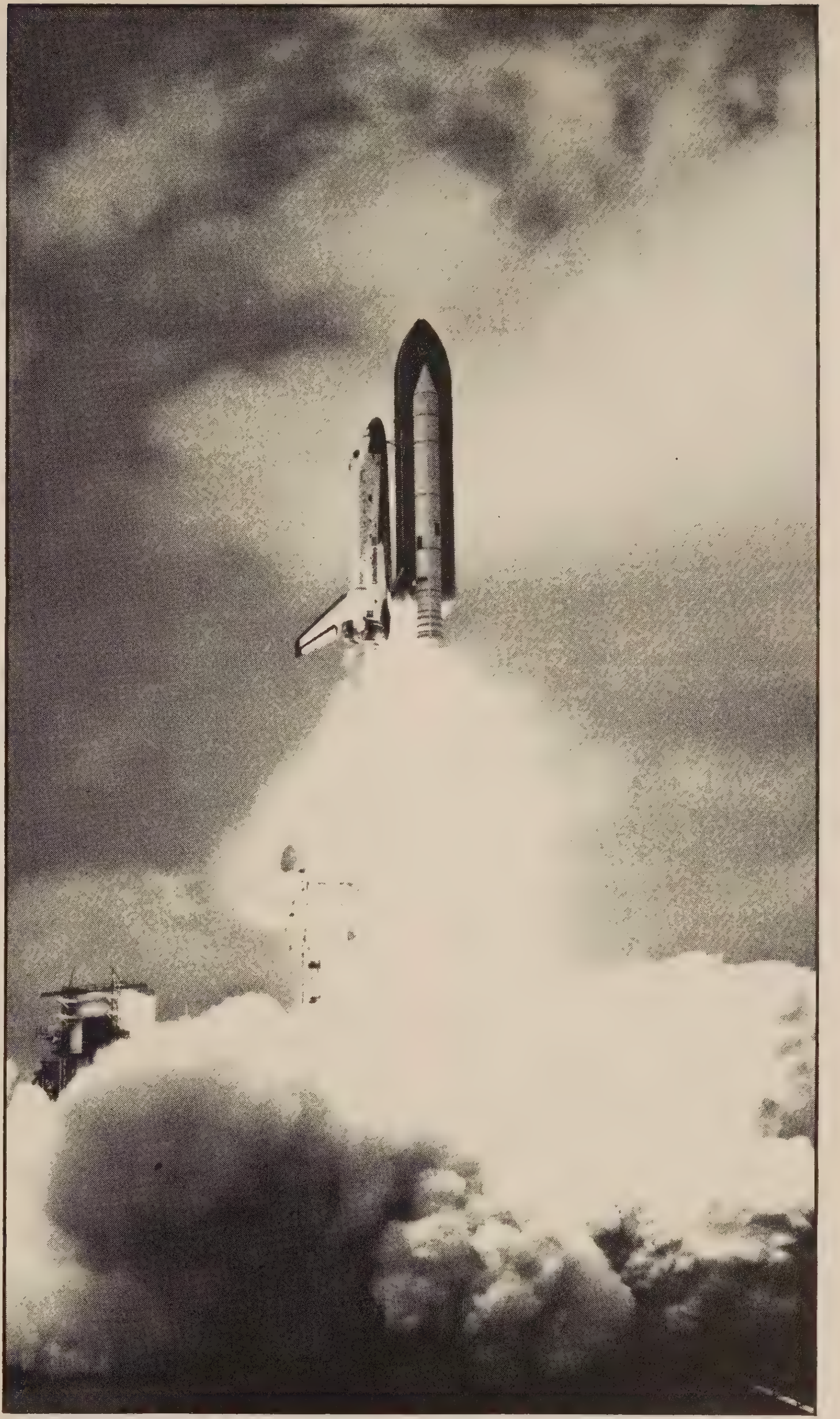
Handling the programme problem might be solved in several ways, using sponsored films, for example, as a form of useful public information by major companies whose names would be associated with the production, but not intrude upon the basic film concept. Anyone who has used sponsored films will know that these are excellent productions, worth a wide audience. Shell and Esso especially have been noteworthy leaders in sponsored films. More sponsored public service television might be possible, too, with official, voluntary and educational authorities providing films and programme packages. Here, there would be some need to vet productions for official government propaganda, but given our traditions of public service programming, this would not be difficult. The Community Programmes Unit of the BBC could be expanded and encouraged to develop more initiatives, though the workers in the Unit would probably say that they are as eager to make relationships in the community, as to make programmes. The Unit, in that sense, would not develop merely into another programme mill.

There could be more East-West TV programme exchanges, perhaps. Pioneers in satellite TV use, capturing the signals from the USSRs Gorizont satellite, have confirmed the high quality of USSR programming, especially in the sports, music and cultural interest area. If we could come to some suitable international agreement, there is little doubt that this programming would add a welcome dimension to British viewing. Since the worst aspects of human taste seem to emerge in any media of communication, it may be necessary to create some kind of monitoring system, though how on earth programmes coming from distant satellites owned and operated by other nationals, could be 'controlled', heaven alone knows. One solution is the possible shooting down of the offending satellite, and this prospect has in fact been discussed. Given the technology available now, there is little doubt that some countries would be quite ready to destroy communications satellites 'guilty' of broadcasting unwelcome propaganda or pornographic material to the 'protected population' below. To put it another way, trying to control programming may be as hard as any attempt would be to control the sale of paperbacks in the modern world. There is the same enormous variation of choice, availability and distribution. Thus, 'the good, the bad and the ugly' will be as present in cable, and/or satellite television, as it is in any other field.

But the devil, to paraphrase General William Booth, need not have all the best channels. As Pope John Paul's visit to Britain clearly showed this summer, religious programming can make immensely appealing, and highly effective television. That kind of television, with noteworthy visual appeal and personal impact, comes in many forms, and is already available to U.S. cable subscribers. Some of it is hardly outstanding, but much is very good indeed. Certainly, if British television were liberalized in the 'religious' area, there would be any number of U.S. church-men (from the respectable denominations!!) who would be ready to invest their time and dollars into helping the British.

Another aspect of the programming problem, already discussed in diverse places, is the way in which major sporting events in the future will be sold to the highest bidder for live showing on TV. In that sense, pay-TV on the cable will add an interesting new dimension to British sport, which is economically stressed these days. Major events, from boxing tournaments to Cup Finals, may be shown only on Pay-TV, live, with later free repeats on the traditional BBC and ITV services.

These interesting fragments from tomorrow's schedules overlook the fact that the new cabling of British will take some time, and a lot of money. It will not all happen at once. The costs seem to be as uncertain as those applied to Concorde. Even when cable and/or satellite services begin in the mid 1980s, very many people in rural areas will be a long way from the new cable links. And they may be quite happy to keep their old TV sets, and keep to the safe, stolid paths of network programming. Of course, the rural enthusiast will be able to buy a dish antenna and the associated electronics for his multi-channel TV set, probably for around £250-£350. But long before that, local councils may start implementing planning restrictions (some have



done so for the very modest CB antennae, so one hesitates to consider what they would make of the large dish). With the present extreme sensitivity on copyright issues, satellite TV users may be expected to pay a subscription to the cable station, even if they are receiving the signals direct. There is also the further complication that some cable pay-TV services may be land-based, locally or regionally situated and using satellites little if at all. While satellite TV really needs an advanced cable network system, cable TV does not essentially need the satellite. Indeed, for a land mass as small as that of the United Kingdom, the real impact of satellite communication may come from the rest of Europe. Where Britain lies in the electronic footprint of European commercial TV satellites, there is no doubt that we will also 'get the message'. Pan European advertising programmes are already occupying the minds of advertising agency executives, and the recent Satellite Television OTS service has been a useful 'trial run'.

Given the tremendous interest in satellite TV, it is perhaps surprising that this London based company got off to a slow start this April. Its programmes, using the European experimental OTS satellite, can be received by homes throughout Western Europe, assuming that the correct decoding and receiving equipment is available. Three cable companies in Norway and two in Finland agreed to take the service to some 200,000 homes initially, and there were plans to develop the service in Malta. More cable companies in Norway, and for that matter in other countries were interested in the Satellite Television service. Incidentally, the cable companies do not charge their subscribers any extra charge for this extra service. It is perhaps another good reason for people to become linked to the cable. As the service started on the basis of some two hours programming per evening, the benefit may seem a little marginal. However, some excellent programmes are available (or 'were' at the time of writing: the life of the OTS satellite is rather uncertain). Rock shows, country and western concerts, documentaries and familiar TV titles were on offer, including 'The Rag Trade', 'Hadleigh', 'Dickens of London', 'Billy Liar', etc. Although much of the programming is purchased from British television companies, notably London Weekend and Yorkshire, some came from independent programme makers. It is interesting to recall that Channel Four plans to use programmes from independent producers, to open out, as it were, the whole concept of programme making. This perhaps brings us back to the jobs problem. There is no doubt that the new producers are leanly staffed, and, in that sense, create few new jobs. The programme makers for the new services will be small organizations, with the minimum of administration, and free from the overheads of the broadcasting bureaucracies. Whilst it adds up to a stimulating new age in television, it will do little to add to employment prospects. Still the actors and producers involved, in a high risk profession, would undoubtedly say that survival was the name of the game — and they would probably be right. And at least the ABS is working to ensure that the new cable services use British rather than foreign talent.

So, between now, and the publication of the Hunt Inquiry Report, and all the discussions that must follow it, we will observe two interesting forces at work. One is the sincere desire of British business to develop, at long last, a viable cable system worthy of the later twentieth century. The other will be the equally sincere desire of trade unions and the broadcasting establishment to move with all possible gradualness. Both have a good case, as well as logical fears. The very basis of the arguments may be questioned, and not merely by radicals without their own multi-channel satellite-ready TV made in West Germany. Already, an executive of the IBA has expressed some dissatisfaction with the government's report on cable, suggesting that 'the members of the working party all had an interest in the success of cable. The fact is that the report is far from dis-passionate'.

With all these arguments, it is perhaps understandable that the busy politicians looked the other way when the cable arguments began ten or fifteen years ago. Even with the best of intentions, the government often makes mistakes in its decisions, certain aspects of the car industry being recent examples. And cable is one of the most complex issues to face any parliament this decade.

This may be Information Technology Year, but finding the answers to the questions now demanding an answer is going to be this year's toughest puzzle. The question that remains is this: will it get answered? Or will 1983, or even 1984, still find us divided, and thus unable to take full advantage of the supreme electronics opportunity before us?

The Exciting Challenge from Luxembourg: History Repeating Itself?

The 1930s battle between the BBC and the commercial radio-stations could be repeated in the mid 1980s satellite services — with impressive benefits for everyone. Radio Tele Luxembourg (the trading name for the Compagnie Luxembourgeoise de Telediffusion) has shown interest in the satellite possibilities since discussions for a European system began some years ago. As long ago as 1973 — and that's a long time in communication terms! — the Grand Duchy of Luxembourg agreed to assign the use of satellite frequencies to the organization, as and when international agreement gave Luxembourg the facilities. So when Luxembourg was allocated five satellite channels at the 1977 World Administrative Radio Conference, Radio Tele Luxembourg was seen as a likely front runner. However, the investment in a satellite service would be massive, when compared to the conventional broadcasting with which Radio Tele Luxembourg has been associated. Extensive research and study have been carried out, under the expert supervision of M. Gustav Grass, Director General. With characteristic flair, the organization obviously feels optimistic about the prospects, assuming that long term mutually-beneficial arrangements can be shaped between Radio Tele Luxembourg and the Grand Duchy itself. By the end of the year, major decisions about the satellite service will be made — and in the light of the Hunt Inquiry Report on the future of Cable Broadcasting, it's probable that the service will be seen in Britain.

Radio Tele Luxembourg U.K. Ltd. has submitted its proposals to the Hunt Inquiry, although these were considered confidential. For good reasons, companies commercially interested in satellite services have not been especially eager to publicize their likely initiatives. In any case, the Hunt Inquiry may provide a few surprises — and even a disappointment or two. But it's no secret that Radio Tele Luxembourg wants to develop a commercial television service via satellite, using pan-European promotions and programmes of wide general appeal, in a number of languages. Thus, in the same year that the BBC plans to start its own satellite TV service, 1986, Radio Tele Luxembourg would like to have its own English language service in operation. The electronic footprint of this service would fall on the relatively affluent south eastern part of England, whilst viewers in the south and east, i.e. in the TVS and Anglia commercial network areas, would also have some opportunity of receiving the signal — though it would probably not affect the Anglia and TVS stations advertising business, as much as, say London Weekend Television. There's no doubt that the battle for advertising income, between the existing networks and the new satellite (and/or cable) services will be hard fought. In the process, the consumer should get a lot of new and very attractive programming, and a diminution of the TV repeats that are so much a feature of today's television.

Radio Tele Luxembourg's English language satellite service would reach some seventeen million people, assuming they had the sets and associated electronics. Naturally, the south east, with its affluence and high population density, should be high on the list for cable services. In that sense, the Radio Tele Luxembourg service, even if it starts in 1987 rather than 1986 (which is possible) would fit in well with the cable developments in the busy south eastern part of this country. The satellite will be launched either by the U.S. Space Shuttle or the French Ariane — European sentiment probably preferring the latter. Estimated cost of the service will be some £200 million. As well as an English language service, Radio Tele Luxembourg will provide channels in French, German and Dutch — and perhaps further languages, in due course.

It's interesting to note the close, harmonious co-operation between the parent organization (Compágnie Luxembourgeoise de Telediffusion) and the Grand Duchy. Some British cable experts would probably suggest that a similar co-operation between our broadcasting industry and government has been less than evident in the past decade, as far as extensions of broadcasting via cable and satellites are concerned. Of course, Radio Luxembourg built up a lot of competition with the BBC in the 1930s, albeit in radio — some fifty years before the impending TV satellites. The International Broadcasting Club (IBC) encouraged listeners to explore the benefits of commercial radio, and from its headquarters in Hallam Street, Portland Place (almost on the doorstep of the hallowed precincts of the BBC itself) spread goodwill among the populace. In 1934, Radio Luxembourg had a very limited service, mainly musical and including 'The Ballito Concert' (dance music) and the 'Vernon's All-Star Variety Concert' on gramophone records. By 1938, it had won an impressive audience from the BBC, with a first class service including leading dance bands and stars of the period. There were some soap operas, too, plus 'The Radio Gang Show' (sponsored by Lifebuoy Soap), Carroll Levis and his Radio Discoveries (sponsored by Quaker Oats) and 'The Rinso Radio Review' which included some of Britain's most popular broadcasters — including Tommy Handley, Bebe Daniels and Ben Lyon, Jack Hylton and his band.

By the time that war started, in September 1939, Radio Luxembourg had a seven day a week service that offered a 'light and bright' alternative to the BBC — though, by that time, the BBC had launched its own counter-attack with 'Band Waggon', 'ITMA' and other outstanding radio programmes. The competition from Luxembourg, you might say, helped Auntie to regain her (lost) youth!!

History could repeat itself. Music, variety and sport, together with some 'spectacle shows', will certainly be a major part of any new commercial satellite service that has to win viewers from the BBC, **and** from the existing commercial networks. No-one in television today can afford to shrug off the challenge that's coming from Luxembourg. There's just too much evidence of style and flair especially that dedicated to winning large radio audiences.

Some believe that our friends at Luxembourg might get their satellite up **before** the British service. Given that in advertising, it is a case of the 'firstest with the mostest', there is an obvious incentive to start the service as soon as possible. However, further international discussions have to occur before anyone — in theory at least — can get a satellite service in motion. No-one really expects anything dramatic to happen before 1986 — though U.S. experience has shown that the Oklahoma Land Rush was a peaceful stroll compared with the race for satellite TV audiences. So, whilst satellites have their own carefully defined geostationery orbits, you could say that the Radio Luxembourg service will certainly pursue that of the BBC. Assuming that the order is not the other way round, that is.

Of all the organizations currently interested in commercial broadcasting by satellite, the challenge from Luxembourg must represent one of the most colourful, and stimulating prospects.

LUXEMBOURG
LUXEMBOURG
SUPERLUX
SUPERLUX
SUPERLUX
LUX IS KING
UXEMBOU
LUX RULES OK

SATELLITE TV NEWS INTERVIEW

We talk to Graham Lawson, of Megasat

STN: What developments have you seen in terms of hardware since we last spoke to you?
GL: The two major developments have been the reduction in size of the antenna requirements for the reception of the Russian Ghorizont bird here in the U.K., and our acquisition of an economically priced motorised mount. The 1.8 dish is so stunning because of its size, the dish itself sits close to the ground and is racked right back to look at the satellite when it's erected in the U.K. The result is that it is shorter than the average person, when you're used to working with 2m and 3m dishes, that's quite a shock especially when you still get a perfect picture.

STN: Which electronic system are you using with the 1.8?
GL: That's Taylor Howard's Equinox system with the Dexcell LNA. It's very much more powerful than his previous 4Ghz receiver and features a host of control options on it's slim brushed aluminium front panel. The most important of these is the fine tune for video and for sound, which when used in conjunction with the LED displays makes it easy for one to optimize the Equinox performance.

STN: Do you have this system on display anywhere?
GL: Yes, you can see it at our Poland Street office. Getting back to the major developments, as far as the motorized mount is concerned, I must say I really find this device very useful and fun. It does get laborious when you're tracking across the heavens looking for satellites and having to adjust the azimuth control every time you adjust the elevation control and vise versa. Of course with the motorized mount this is a thing of the past.

STN: Can you briefly describe how it works?
GL: It's a true polar mount which means to say there are 3 legs. One of them is of a fixed length, one is adjustable and the other is motorised on a screw thread. This enables it to lengthen or shorten on command to the motorization unit. The adjustable leg is set up once for each site, so once we have installed that leg needs never to be touched again. As the screw thread is adjusted, the dish tracks across the arc of satellites, thus enabling you to see every available satellite without moving from your seat. This unit has also a computer, which allows you to memorize the position where you obtain the strongest signal from each satellite. It's been developed for us by Gamlen Associates who were commissioned by Megasat for foundation load design.

STN: So you never need to adjust the dish again, is that right?
GL: Precisely, once we've installed you just return to the positions that we entered into the computer for you.

STN: Do you find that there is a trend developing of people that have a use for Satellite TV?
GL: Yes, the major users at the moment are the television companies, research and development organizations, at university level both the electronics and mechanical engineering departments, language learning laboratories (especially those with Russian Departments), embassies, hotels and of course, expatriot Russians.

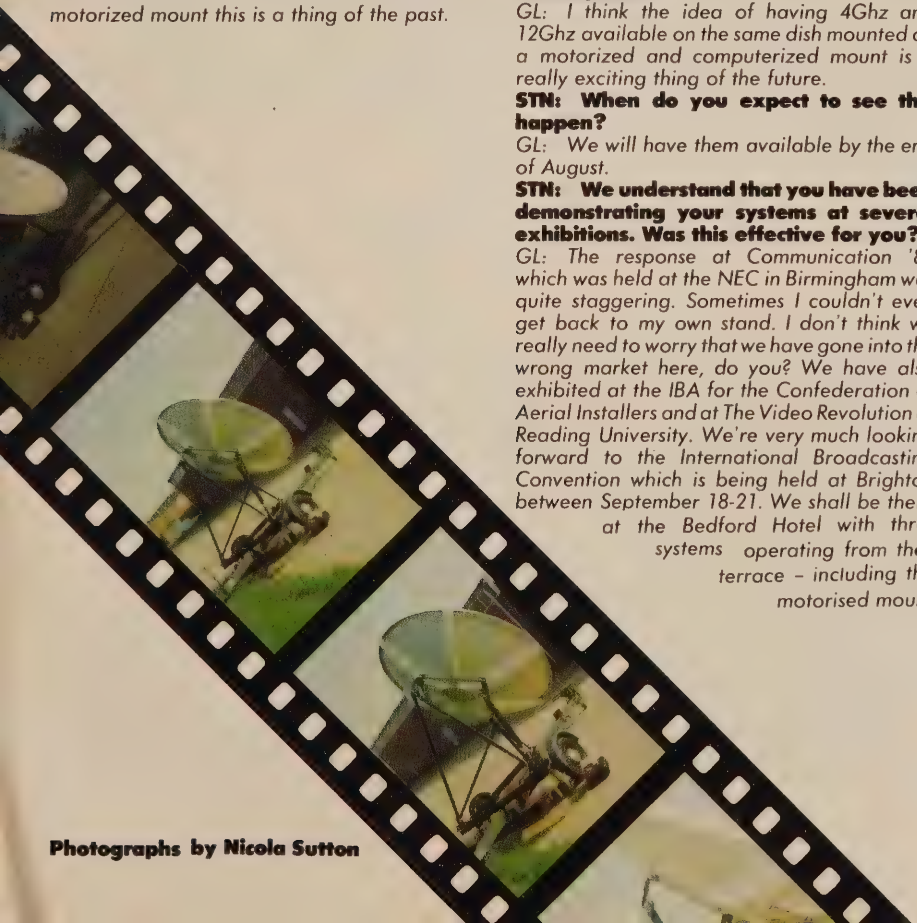
STN: Are there any particularly new items coming up that you find an exciting development?
GL: I think the idea of having 4Ghz and 12Ghz available on the same dish mounted on a motorized and computerized mount is a really exciting thing of the future.

STN: When do you expect to see this happen?
GL: We will have them available by the end of August.

STN: We understand that you have been demonstrating your systems at several exhibitions. Was this effective for you?
GL: The response at Communication '82 which was held at the NEC in Birmingham was quite staggering. Sometimes I couldn't even get back to my own stand. I don't think we really need to worry that we have gone into the wrong market here, do you? We have also exhibited at the IBA for the Confederation of Aerial Installers and at The Video Revolution at Reading University. We're very much looking forward to the International Broadcasting Convention which is being held at Brighton between September 18-21. We shall be there at the Bedford Hotel with three systems operating from their terrace – including the motorised mount.

STN: Have you got OTS System 2 up and working yet?
GL: Yes, we have just done our first test on OTS 2 and we hope that we'll be able to obtain a decoder for test purposes soon in order that we can make valued judgements about which items would be the most beneficial to stock. At the moment there is only a scrambled signal to look at.

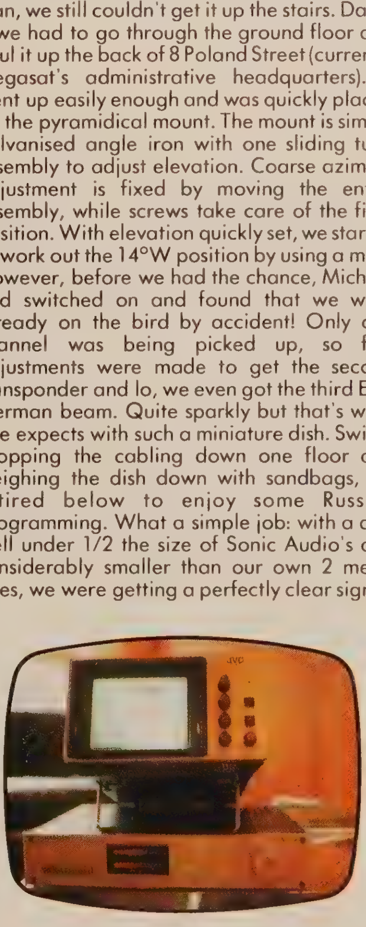
STN: When are your Do-It-Yourself dishes going to be on the market?
GL: We're testing the molds right now. We expect them to be available during September. You will be able to rent a mold from us, buy the fibreglass from us and with those two items build your own dish.



Photographs by Nicola Sutton

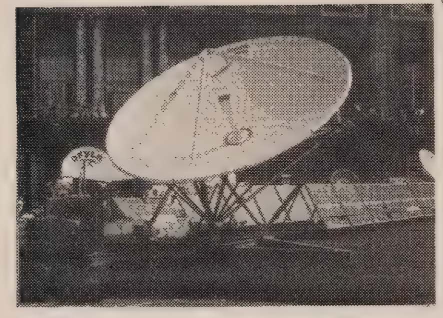
A SENSIBLY SIZED ANTENNA

It was warm and sunny when we found that, despite the miniscule size of the 1.8m dish and having a weight that was easily lifted by one man, we still couldn't get it up the stairs. Damn it we had to go through the ground floor and haul it up the back of 8 Poland Street (currently Megasat's administrative headquarters). It went up easily enough and was quickly placed on the pyramidical mount. The mount is simply galvanised angle iron with one sliding tube assembly to adjust elevation. Coarse azimuth adjustment is fixed by moving the entire assembly, while screws take care of the final position. With elevation quickly set, we started to work out the 14°W position by using a map. However, before we had the chance, Michael had switched on and found that we were already on the bird by accident! Only one channel was being picked up, so fine adjustments were made to get the second transponder and lo, we even got the third East German beam. Quite sparkly but that's what one expects with such a miniature dish. Swiftly dropping the cabling down one floor and weighing the dish down with sandbags, we retired below to enjoy some Russian programming. What a simple job: with a dish well under 1/2 the size of Sonic Audio's and considerably smaller than our own 2 metre ones, we were getting a perfectly clear signal.

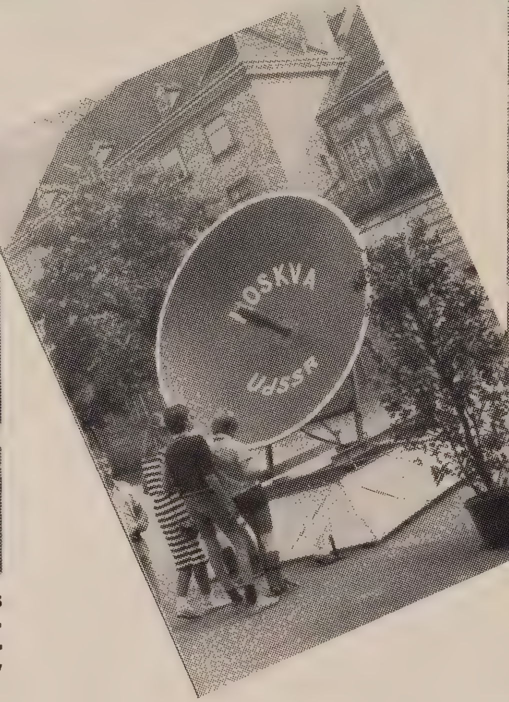


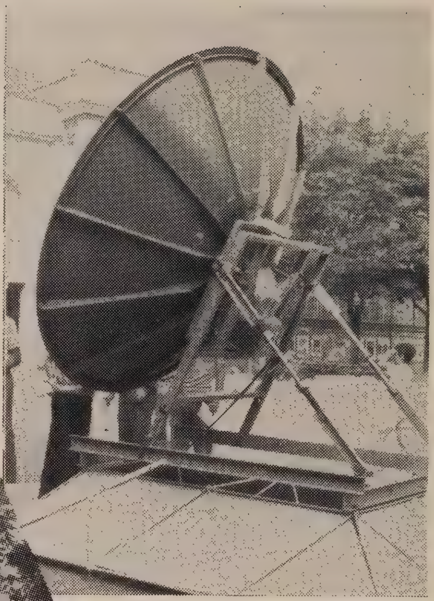
'3m Satellit Teknik dish on a motorized and computerized Miralite mount. Low noise amplifier by Dexcell. Down-converter and Receiver by Taylor Howard, his Equinox system.

EXHIBITED AT VIENNA (Unispace, 82, August)



Scientific-Atlanta presented this earth station powered by photovoltaic systems: it is proposed for rural or remote countries for TV reception...





The Soviet TVRO station of the Moskva system, using the Gorizont-Statsionar spacecraft (2.5m diameter antenna) and operating at 3.7 GHz ... (Photo SIC/Th.P.)

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The London Business School Takes A Critical View

Avoiding the Cable 'White Elephant'

"A highly successful de-regulated cable operation would be socially divisive, with say 10 million better-off homes able to obtain much of their viewing from cable, and 10 million not. With a moderately successful cable operation, the effect would be less drastic — say 3 million well-off homes getting small additional choice in their effective viewing (say 20% or 30%)."

The prediction comes from a paper (published June 1982) written by Professor A.S.C. Ehrenberg and Mr. T.P. Barwise of the London Business School: 'Inquiry into Cable Expansion and Broadcasting Policy'. This interesting submission to the Hunt Inquiry into Cable Expansion and Broadcasting Policy offers the fruits of some hard thinking by two members of the London Business School's Marketing Faculty. Both Professor Ehrenberg and Mr Barwise are well qualified for authorship of such a paper, having been involved in basic audience research for the IBA over many years. They are also involved in studies of U.S. radio and television for the Markle Foundation of New York.

Whilst some optimists call for a free market in cable systems, this paper suggests that a regulated system, with diverse forms of funding, is to be preferred, using the pattern of control already used in British broadcasting. It may not be a perfect system, but on the whole, it has served the public well. The Americans, we are reminded, may have abundant television, but it is **not** de-regulated, since, on paper at least, the Federal Communications Commission has the final word on a station's operations. Indeed, the authors of this paper suggest that the case for a rapid and largely unfettered development of cable television in Britain has yet to be made. Additionally, the potential economic benefits are too approximately defined, and would in any case be 'comparatively small'. Somewhat bluntly, the authors suggest that the projected benefits are 'based on a range of cable usages for data transmission to and from the home, which are unlikely to happen on any commercially significant scale this century'. There, you might say, is the crunch. Will cable be a TV Bonanza, or merely bring repeats of 'Bonanza' on the TV? The question relates to other arguments in the air during the past year or two, as to the commercial viability of expanded commercial television. MPs, advertising agency directors and others have expressed doubt that advertising income, i.e. for showing of TV commercials, can sustain existing ITV networks, as well as the soon to come ITV2 (Channel Four) as well as breakfast-time commercial television (TV-AM) starting in February 1983, less than six months after the launch of Channel Four.

The financing of any large-scale cable system this side of 2000 A.D. will be largely derived from mass audience entertainment, the authors believe. 'The scope for minority **interest** programming will remain small : television, whether cabled or off-air, is a slow and inflexible information medium. Achieving the production standards that we now all expect is also very costly (compared with radio or print). For similar reasons, there is virtually no scope for producing local access and community programmes that people will actually watch'.

This is true enough, and raises other arguments about the future of television. Town-based cable experiments in recent decades have not been especially successful, and have not attracted large audiences, but it is perhaps unwise to assume that community needs will not be more acute in a few years time. Large scale unemployment, the need for a wide programme of adult education and re-training, the demands of the ethnic population (rightly) for more programmes tailored to their needs, could all be reasons for implementing community networks — but these would have to be funded by government, local or national. Yet, if 'almost all the potential usage of cable to the home this century, e.g. 90% plus' is to be, as the authors suggest, 'for mass audience entertainment, a maximum of ten channels would seem appropriate' so that the optimistic proposals for twenty five or more channels seem unrealistic. 'Other technologies might be better able to meet such limited user requirements within a number of years, e.g. four terrestrial channels and up to half a dozen satellite channels. Large-scale cable investment would then become a white elephant. This is a danger. But costed realistically, a wide-band cable network might nonetheless be found to pay'.

A moderately successful cable system, the authors suggest, by 1999 would give some 30% of British homes — some six million households — access to cable. Of the six million homes with their service 'at their doorstep' as it were, two million might be expected to take up the option. And of total viewing hours in these linked households, perhaps 20% of viewing time might be given to the specifically cabled programmes. Thus, in realistic market terms, the prospect for any new commercial context, is directly linked to the number of viewers you can attract — and hold.

But the authors offer an optimistic alternative, which must be more in line with the views of some supporters of the de-regulation argument. A high level of success by 1999 would cover a large part of the country with cable, say 60% of homes, or twelve million potential household subscribers. Of these, a high percentage would be expected to subscribe, 80% say, or ten million homes. Further, the extra cabled channels would be very popular, gaining as much as 60% of total viewing time in the cable-TV homes. But, as the opening sentences of this article suggest, the effect could be socially divisive. Mere commercial considerations cannot alone under-write the spread of cable.

'Bring the eventual coverage of the population up to 90% — 95% would depend on subsidies from the financially or geographically more advantaged, either through cross subsidies within the same supplier, as with electricity or telephones, or through ear-marked levy-type taxation, of the commercially-profitable operations, or through public funds.' And whilst 'significant cable expansion is bound to come this century, its scale may be only 2 million, or it could be 5, 10 or 15 million homes — the highest figure being unlikely by 1999. But as far as revenues and the impact on a large proportion of U.K. homes is concerned, there is as yet no evidence that very substantial 'wired nation' spin-offs will occur. Just because a service is technically feasible, it does not mean that large numbers of people will buy it.'

With new cable services, offering a popular diet of feature films, sports events and spectacular video, the fight for audiences could become intense. The original 'Cable Systems' report agreeably noted that standards in broadcasting had been generally maintained, and viewer choice expanded, following the introduction of the first commercial service in the mid 1950s. However, the report perhaps overlooks the old problem of marginal benefits. The alternatives to date have been presented in the context of a (very) limited choice, this itself a major factor in the British boom in video hardware and software.

Many advertising executives would argue that the fight for audiences has hardly started yet, compared with the battle that will break out when the satellite services arrive. And there is no bottomless pit of high quality television programmes — certainly not with today's income for the BBC or ITV. Low cost U.S. soap operas and crime series help fill the programme schedules, but no one would pretend that they are praiseworthy. Indeed, there is more viewer criticism of some of these U.S. shows than the programme shapers would admit, and performing interest trade unions have already indicated that they would resist a further invasion of cheaply-made 'fill the gap' shows from other countries, while so many of their own members remain unemployed. Britain does indeed enjoy a lively renaissance in the arts today, but all programmes have to be paid for. Cable developments could not rely on U.S. shows bought in cheap because they have already recovered their production costs on American networks — though there have been examples of this electronic merchandise on our screens already. 'The basic consideration,' argue the authors of this report, 'has to be that television is of far greater social than economic importance'. Coming from two eminent marketing specialists, the phrase is worthy of special note.

In a section on a possible structure for cable television, the authors suggest a diversity of financing options, which would limit direct competition for any single source of finance. Thus, some channels would work on a pay-TV or licence fee basis, others on a commercial or public broadcasting basis. Two types of channel are proposed: (1) where programming is highly regulated, but where no taxation is imposed; and (2) where little regulation is required, but where potentially high taxation is imposed. Thus, 'a cable channel wishing to restrict itself to a narrow range of programme types would have to do so, on a high subscription/pat-TV basis, subject to substantial tax and/or levy options, possibly ear-marked for 'uncommercial' extensions of cable coverage and/or programming'.

Diversity, rather than all out competition for the consumer's cash, is the keynote here.

American experience in cable, is noted in another Appendix. It makes timely reading. 'Only two cable channels (HBO and WTBS) are currently said to be making money, whilst the competition is still building up', the authors wryly observe. 'William Paley's cable arts channel, 'Bravo' is expected to lose forty million dollars this year.

A supervisory framework — using the experience derived from good work with the BBC and IBA — is recommended with 'flexible, arms-length but potentially tough sanctions' (e.g. loss of franchise).

Cable is not likely to create a vast pool of new jobs, and there could be keen foreign competition for markets and contracts. Yet there is good reason for an early decision to press on with the cabling of Britain, assuming that a realistic policy is followed.

Goethe once remarked that nothing was so terrible as the sight of ignorance in action. He might have said the same of unrestrained enthusiasm. The impatient advocates of cable have been waiting too long for government decisions, but they may serve their cause best by following some of the ground-rules proposed in this interesting and useful document from the London Business School.

'Inquiry into Cable Expansion and Broadcasting Policy' : A Submission by Professor A.S.C. Ehrenberg and T.P. Barwise, is available from the London Business School (Sussex Place, Regent's Park, London NW1 4SA. Telephone 01-262 5050).

Review by David Lazell

EBU BROADCASTING EXPERIMENTS WITH OTS

by Mark Williamson & Ron Jones

A major broadcasting experiment investigating how to create a Pan-European TV Service using a geostationary satellite began on May 24th 1982. To date at least seventeen European and North African broadcasting organisations within the EBU are preparing to take part in a series of experimental transmissions via OTS beginning with the UK's IBA who supplied a five-hour schedule each day from 24th-30th May. The experiments were designed to demonstrate and investigate the possibilities for a full-scale European TV Service using multi-channel (multi-lingual) sound, teletext subtitling and various categories of programme material, which will be assessed in terms of audience-reaction.

OTS, the Orbital Test Satellite, built by British Aerospace, was launched on May 11th 1978 and is thus entering its fifth year in orbit. The satellite has been utilised extensively over this four year period largely for experiments of a technical nature, but the advent of the EBU tests marks the first experimental Pan-European television programme service via satellite, in which programme content is more important than the hardware making it all possible.

The service was transmitted up to the satellite by the Independent Broadcasting Authority's antenna facility at Crawley Court, Winchester, and since the sound channels were digitally multiplexed only suitably equipped users were able to receive and select the programme sound channel of their choice. The video signal may also be scrambled in future although this is not certain at the moment.

Those countries so far intending to participate are Algeria, Austria, Belgium, Finland, France, Germany (Federal Republic), Ireland, Italy, Malta, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Tunisia and UK. The initial week of experiments coordinated by the IBA will be followed by four subsequent week-long trials coordinated by the broadcasting services of RAI, Italy (19th-25th July); ORF, Austria (27th September to 3rd October); NOS, Holland (25th-31st October) and ARD, Germany (25th-28th November).

OTS2, the European Space Agency's Orbital Test Satellite under test in the Radio Frequency anechoic chamber at British Aerospace Dynamics Group, Stevenage.

The schedules will comprise a wide range of programmes selected from the best available material provided by most of the participating countries. This means programmes which are expected to be of interest to the general European viewer: major drama series perhaps, documentaries, sports, music programmes, films, European/World News etc.

The United Kingdom's programme schedule was originated at the Park Royal facilities division of Visnews where a team of interpreters provided the six-language multi-track sound for a 20-minute news/information package edited under the guidance of an EBU team. This was transmitted at 1800 each day being followed by 4½ hours of programming, mainly from video tape, but including some live material. It has aimed to provide programmes with teletext subtitles.

The final programme package was sent to the IBA headquarters in Brompton Road, London from where it was transmitted by land-line to Crawley Court. As previously stated, Crawley Court uplinked the signal to OTS

Technicians prepare OTS2 for launch from Kennedy Space Centre, Florida. The spacecraft is mounted within the shroud of the Delta 3910 launcher which successfully delivered OTS2 to orbit on 11 May 1978.

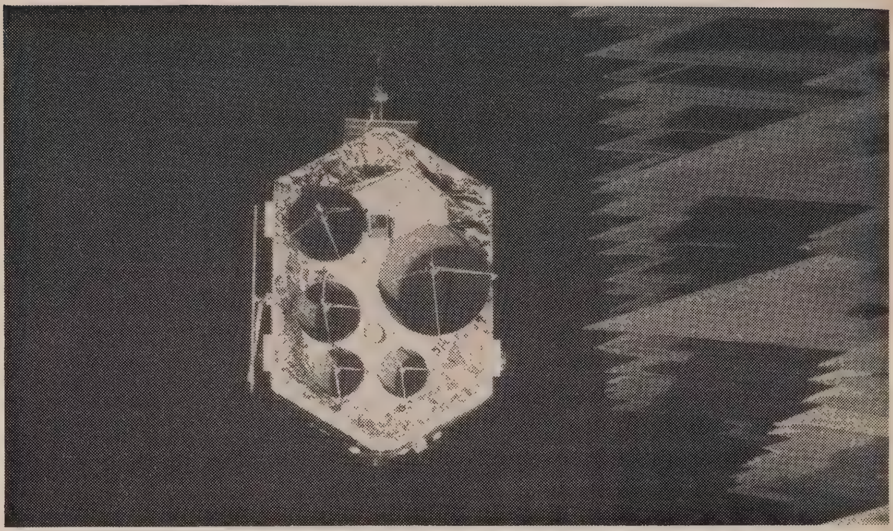
The Orbital Test Satellite in the Environmental Test Chamber facility at Toulouse. Here the spacecraft is subjected to the conditions under which it will have to remain operational for several years in geostationary orbit.

which broadcast the programmes to Europe's authorised receiving terminals, one of which was provided by British Aerospace stationed back at Visnews to complete the loop. The engineers and production team thus had a direct indication of how their original programme was being received by the participant experimenters throughout Europe.

The stated objectives of the broadcast experiments are: to demonstrate and test five different schedule patterns for a Pan-European TV Service; to carry out research designed to assess audience reaction to such a service and its impact on existing national services; to experiment with and assess the costs and effectiveness of multichannel audio and teletext subtitling in different languages; to seek new ways of making programmes understandable to a multi-lingual audience; to assess the nature and cost of the central services, including news and information services, and other infra-structure that would be required for an operational European service; to identify and, as far as possible, resolve the technical, legal and financial problems that an operational service would present; and to draw attention to the interest of European public-service broadcasts in co-operation in the field of direct-broadcast satellites.

Apart from acting as a dynamic 'broadcasters convention' to bring together the broadcasting fraternity of Europe, the series of tests is expected to attract members of the European Parliament, the PTTs, regulatory bodies and other 'influential' individuals who will visit the various facilities involved in the satellite link.

These experiments mark a significant step in the Broadcast Satellite Revolution which will soon help to bind the European nations together in a way which, without the geo-stationary satellite, would be impossible.



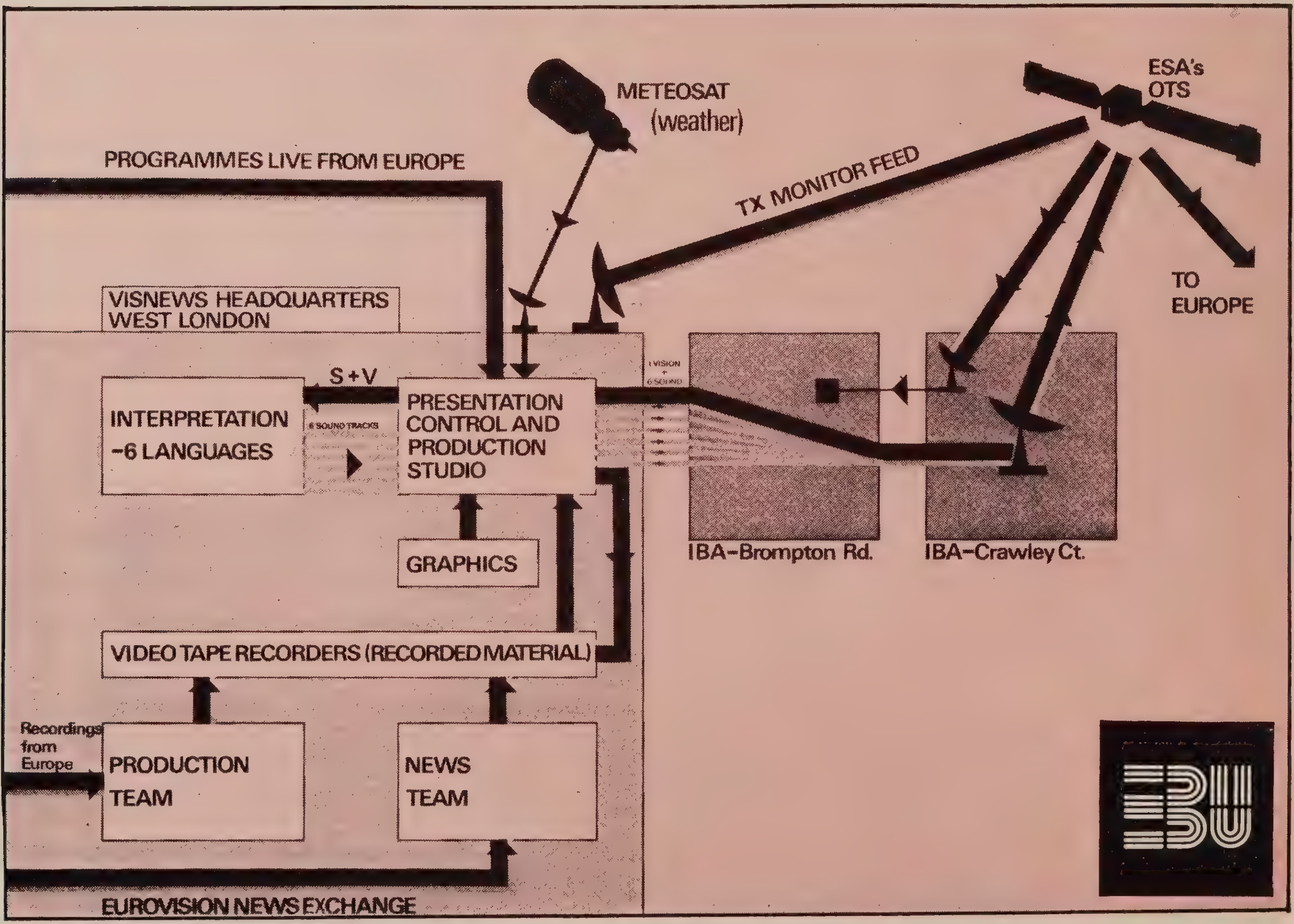
Whether the broadcasters and programmers can manage to concoct a mixture of programming which will prove palatable to all European countries remains to be seen.

The experiments took place using OTS Channel 4 on 11.640 GHz.

Carrier deviation : 12.5 MHz/volt
Energy dispersal : standard
Pre-emphasis : CCIR 405-1
Sound subcarrier : Vision carrier + 7.5 MHz
Sound s/carrier modulation : 4 phase PSK, 6 channel multiplex at 2M bits/sec

OTS has recently been relocated at 5°E longitude and can now be found, by an observer in the London area, on an azimuth approximately 173° ETN (East of True North), at an elevation of 30.8°.

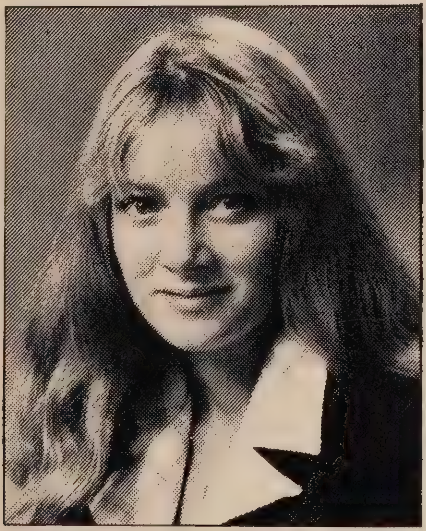
The signal is transmitted through the spot beam and with a clear sky reasonable quality pictures can be obtained by a receiver installation whose 'goodness factor' is of the order of 20 dB/K (e.g. a combination of a 2.5m dish antenna and 500K system noise temperature).


METEOSAT (weather)
ESA's OTS
PROGRAMMES LIVE FROM EUROPE
TX MONITOR FEED
TO EUROPE
VISNEWS HEADQUARTERS WEST LONDON
S+V
INTERPRETATION -6 LANGUAGES
6 SOUND TRACKS
PRESENTATION CONTROL AND PRODUCTION STUDIO
1 VISION + 6 SOUND
IBA-Brompton Rd.
IBA-Crawley Ct.
GRAPHICS
VIDEO TAPE RECORDERS (RECORDED MATERIAL)
Recordings from Europe
PRODUCTION TEAM
NEWS TEAM
EBU
EUROVISION NEWS EXCHANGE

PROFILE ON PEOPLE

New Member for Broadcasting Complaints Commission

The Home Secretary has recently announced the appointment of Mr. Tom Jackson as a member of the Broadcasting Complaints Commission. His term of office will run for five years from August 1st, 1982. Mr. Jackson is General Secretary of the Union of Communication Workers and HM Government Director of British Petroleum Co. Limited. He was a member of the Annan Committee on the Future of Broadcasting and is a former member of the Press council and former BBC Governor.



Satellite Communications Magazine has New Editor

Kim Degnan is the new editor of Satellite Communications Magazine of Denver, USA. She has worked in the satellite industry for five years and has extensive post graduate training in telecommunications engineering and financial analysis.

VISNEWS Directors

Alan Protheroe, MBE.TD., Assistant Director-General of the BBC, and Alan Hart, Controller, BBC-1, have been appointed to the Board of Directors of VISNEWS, the international television news agency and communications company. They succeed Richard Francis, formerly the BBC's Director of News and Current Affairs who is now Managing Director, Radio, and Noble Wilson, Controller, International Relations, who had been a member of the VISNEWS Board for eight years.

Another new appointment to the VISNEWS Board is that of Peter Smith, who is Reuters' International Communications Manager, Europe. He joins two other Reuter members of the Board, Michael Nelson, Deputy Managing Director and General Manager of Reuters, and Nigel Judah, Finance Director and Secretary to Reuters.

Alan Protheroe's role as Assistant Director-General of the BBC includes special responsibility for the BBC's journalism and, as such, he has a close interest in VISNEWS, which provides worldwide television news coverage for the BBC and for 270 other broadcasters in 98 countries.

The third BBC member of the VISNEWS Board, Michael Checkland, Director of Resources — Television, has been elected Deputy Chairman of VISNEWS in succession to Richard Francis.

BBC and Reuters are each one-third owners of VISNEWS, in which the other shareholders are CBC (Canada), ABC (Australia) and BCNZ (New Zealand).

Director General for the IBA

John Norton Braithwaite Whitney will become the IBA's new Director General from November 1st this year — the first time that someone from within the industry has been awarded the post. Fifty one year old John Whitney has spent the last thirty years in commercial broadcasting and his career spans a period producing and directing programmes for major advertisers such as Radio Luxembourg, devising series such as Upstairs Downstairs and managing Capital Radio.

Visnews Announces Top Appointment

VISNEWS has appointed Chris Pooley as head of Broadcast Facilities Division which trades as Broadcast Facilities International.

Mr. Pooley, an electronics engineer, began his career with EMI Research and Airborne Radar in 1953. He moved to Racal Research and Advanced Development in 1961, and from there into broadcasting as Development Engineer for ATV at Elstree in 1964.

In 1968 he helped found and run Technicolor Vidtronics with Ron Edgerton, and in 1972 became Operations Manager of the computer animation company — Merlot Scanimation.

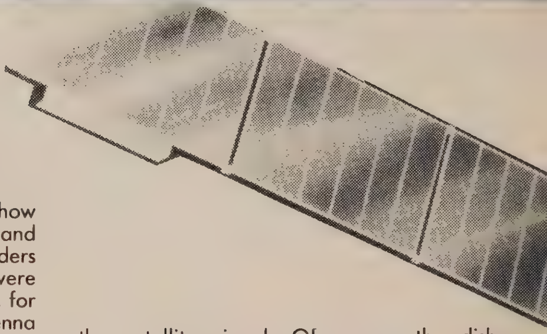
He joined VISNEWS in 1975 as Senior Electronics Engineer and has developed the Company's Electronics Department from its original news-based service to the full-scale, international broadcast facilities division that it is today.

Chris Pooley takes over from present Divisional Manager — Roy Vitty — who has been appointed Head of Production Facilities at the new BBC Lime Grove Topical Programmes Centre, where he will be responsible for setting up a separate unit for live broadcasting including news, sport and breakfast programming.

Broadcast Facilities International offers the widest range of international facilities anywhere in the World, and has special expertise in digital standards conversion and international satellite link ups.

For further information contact:
Frances Whitehead
Public Relations Officer
Visnews Limited
Cumberland Avenue
London NW10 7EH
Tel: 01-965 7733
Cables: Visnews London
Tlx: 22678

Satellite TV and the Set Makers
Will it be a gold rush or mad rush?



This year's CETEX exhibition, the trade show for consumer electronics manufacturers and distributors, offered many impressive wonders to visitors. Among these, inevitably, were satellite television demonstrations. Luxor, for example, installed a two-meter dish antenna on the roof of the Earls Court Conference Centre, at which CETEX was held, to provide the signal for live Russian TV demonstrations on the Luxor stand. The Ghorizont satellite may be Russian, it was observed, but it has been doing wonders for satellite business here in the west.

Philips also used a dish antenna, on the roof at Earls Court, and by the time that the next CETEX show is held, there may be a real shortage of roof space for that kind of initiative. For, whilst video (disc and tape) was a major talking point at the show, many visitors were impressed by the satellite transmissions. For many it was the first opportunity to see what might be possible — sooner than we think.

Some set-makers, including some of the most prestigious names in the business, were keen to show that their new sets were equipped for multi-channel reception, teletext and the satellites. Finlux, a major electronics company in Finland, uses the prefix 'Satellite' for its new model range, which, in addition to a luxury specification, include sets with a frequency synthesizer tuner, with a 30-station memory. Saba products, made in West Germany, included sets with a Europa tuner, reported to provide transmissions from European stations, as well as cable and satellite signals. By next year, few sets will have a ready appeal, unless they have the electronics incorporated in the provided circuitry, for cable and/or satellite services. Indeed, for some time, the Western Europeans have been very 'choosy' in purchasing new colour television sets, requiring a minimum of sixteen channel access, on the basis that these will be operative quite soon.

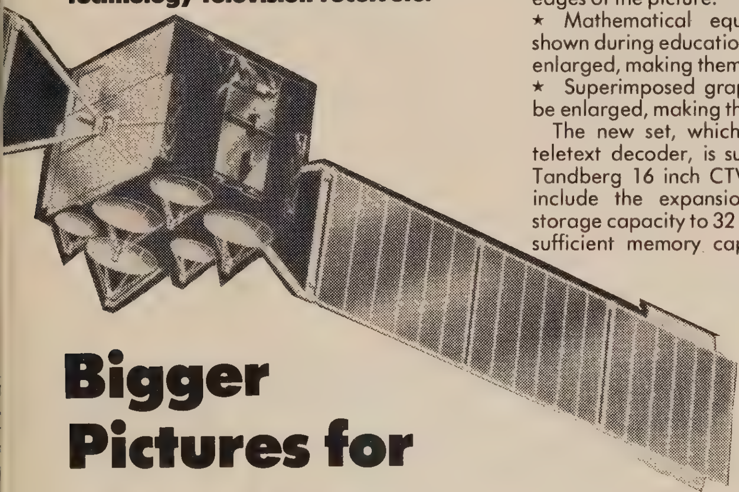
Apart from colour portables and small sets for the kitchen or bedroom, television business has not been especially bright, though video recorders have certainly encouraged the trade — and will continue to do so. Yet, if consumers are to enjoy the benefits of the satellite services, they need to be especially selective about their major set purchases **now.** The retail trade in Britain wants a single, broadcasting standard for the whole of Western Europe, so that the new models can be sold on a trans-European basis, ready for use in any country. Were this introduced soon (and preferably yesterday, as some would suggest) this would permit the manufacturers and retailers to use this as a major selling point. Existing 625-line UHF sets, including those bright and shining models in the showroom, usually operate on AM only, though some European sets offer dual standard AM/FM. Satellite signals will use FM modulation, so that existing sets will require a converter (at the set, or at the antenna) to permit the set to handle the satellite signal. Of course, the dish antenna, duplexer and frequency converter would also be required for the adaptation of an existing set for satellite signals. Whilst this may, in the way of specialist business, offer no problem, apart from the consumer's finding the cash to meet the bill, it makes for easier business if a set can have some of the necessary electronics incorporated in its existing design.

This time next year, we will have TV-AM (breakfast commercial TV); Channel Four, and the three existing channels we possess today. The BBC plans two channels on the satellite — probably the L-SAT — whilst the IBA would like to use a further three. One cannot anticipate political decisions (which may be made at short notice, in any case) but it would seem unlikely that the request of the IBA could be resisted, in today's laisser-faire economic climate. So, within a relatively short time, the viewer will move from a three-channel option — available in the summer of 1982 — to a minimum of nine channels derived from the UK satellite, in addition to those from European satellites. That is, where reception is possible (extra sensitive antennae may be used in some places to capture the European satellite signals).

As the prospect of this begins to sink into the great British television-set buying public, more sophisticated models will be demanded. On the evidence of this year's CETEX, these will often come from Western European companies, with a reputation for high quality sophistication. Trying to develop market strategic planning, is difficult, where manufacturers have to assess government intentions. The success of some Western European manufacturers in developing satellite-ready domestic television sets, owes a great deal to firm decisions on the part of government itself. So — will we get that new, single broadcasting standard for the whole of Western Europe? It's urgently needed. Consumers may show the same resistance to clutter (the electronic bits and pieces) in satellite television as they did in the case of hi fi. That resistance, it will be recalled, created the market for racked hi fi, sometimes known as 'the music tower'. Whilst we are having to make many overdue decisions quickly here in Europe, the Americans are becoming more selective in their use of television. A recent survey has indicated that whilst the questioned representative group of Americans liked satellites, they were less interested in dozens of channels than a firm four or five channels showing feature films and sport. One electronic product that the Americans don't like to shout about is a neat device that silences the commercials during transmissions. Even with the very best models, that gadget does **not** seem to be available!

New Receiver Product News

With the advent of new cable systems and television by satellite not now too far away many television manufacturers have been looking at ways in which they can be prepared for the expected boom with new technology television receivers.

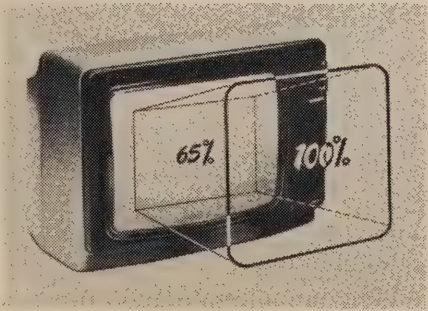


Bigger Pictures for Portable Colour TVs

A portable colour television set which enlarges the central sector of its picture at the touch of a button has been introduced in Britain by the Norwegian electronics company, Tandberg.

This innovation, which enables the central 65% of the normal television picture to be enlarged to cover the whole screen, effectively dismisses the single biggest argument against portable televisions: the smallness of the picture. The Tandberg set actually enlarges the central picture sector of a 16 inch portable to the reproduction dimensions of a 20 inch table model without any perceptible loss in picture sharpness, since there is automatic contrast adjustment.

Portable TV with Enlargement Facility
The Tandberg 16" portable colour TV, showing the effect of the image enlargement. This facility enables the central 65% of the normal television picture to be enlarged to fill the whole screen.



The image enlargement function can be selected by remote control, allowing quick access when interesting scenes are being shown.

Other advantages include the following:

★ Films in cinemascope can be played without the distracting stripes at the top and bottom edges of the picture.

★ Mathematical equations and formulae shown during educational programmes can be enlarged, making them easier to read.

★ Superimposed graphics and sketches can be enlarged, making them easier to recognise.

The new set, which can be fitted with a teletext decoder, is superior to the previous Tandberg 16 inch CTV in other ways. These include the expansion of the programme storage capacity to 32 programmes, providing sufficient memory capacity to enable it to handle the inevitable future increase in the number of programmes available through the introduction of cable and satellite television.

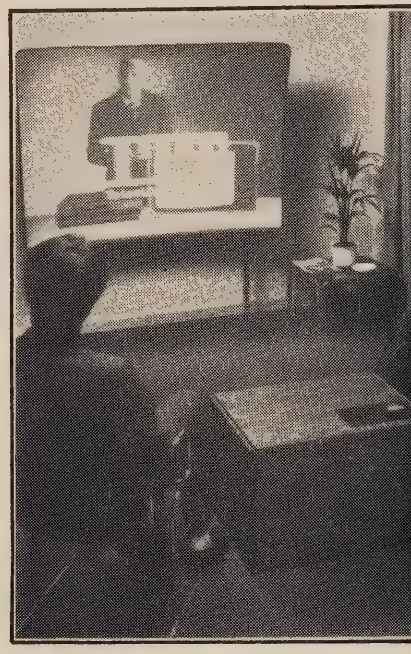
The image enlargement facility is an appropriate addition to Tandberg's existing range of high-technology colour televisions.

Tandberg Limited
Revie Road, Elland Road,
Leeds LS11 8JG
Tel: (0532) 774844
Telex: 557611

ITT Choose "Cinevision"

ITT Consumer Products have recently launched a projection television system featuring wide viewing angle without the need for room darkness. The Cinevision 200 makes use of a new type of projection tube which when combined with a specially designed screen allows high quality colour pictures to be shown with only a slight reduction in room lighting. The *Novabeam projection tube manufactured by Kloss Video Corporation in the USA has a light output which is far greater than has previously been achieved. The two metre diagonal screen also manufactured by the Kloss Video Corporation is parabolic and silvered with a picture area of more than nine times that of a conventional 26" television screen.

The Projector of the ITT Cinevision 200 can be mounted either on the floor or on the ceiling and for floor standing use the installation is very simple. It is only necessary to ensure that the distance from the projector to the screen is 2.44 metres (96 inches). The height and position of the screen are automatically fixed by the pedestal stand.



The ITT Cinevision 200 Projection Screen TV

Cinevision 200 is as simple to use as an ordinary colour television set as the controls are very similar and no trained operator is required. It has 16 UHF channels, an internal loudspeaker and controls for volume, balance, bass and treble as well as facilities for video recording and stereo sound. Larger screens are to be inaugurated in the near future.

In the United States similar systems are already well known in hotels, bars and clubs and ITT foresee a similar future for their Cinevision 200 with of course the advantage of being able to screen to large audiences for social, business and educational use and the possibilities for exhibitions and trade shows making it a very viable proposition.

ITT Consumer Products (UK) Limited
Chester Hall Lane, Basildon,
Essex SS14 3B4
Telephone: Basildon (0268) 3040

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NOVABEAM*

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Television & Video.
Everything looks better with ITT

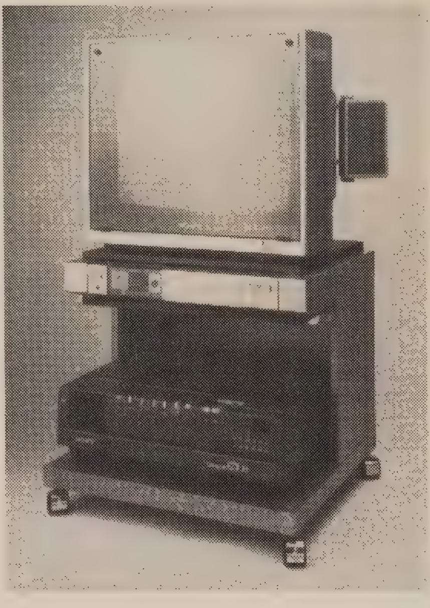
Sony launch "Profeel"

At the end of May, 1982 Sony UK launched the World's first component television system called "Profeel". The idea of "Profeel" is that it is well equipped to cater for new technological developments in the foreseeable future and it will not be necessary for the set to be renewed every time new advances are made. "Profeel" separates the basic elements of a standard TV set into it's component parts ie a separate monitor or screen, a separate tuner for channel selection, separate speakers etc and as broadcasting techniques expand Sony will develop new components to add to the system. The heart of the Profeel system is the monitor TV which initially will have a 20" screen size and eventually a 27" model will become available.

The colour monitor utilises a high quality 100° deflection Trinitron tube, offering inputs for audio and video. Video inputs allow PAL/SECAM/NTSC modified colour signals to be processed, and an RGB input ensures optimum resolution of future high definition text systems. The monitor includes an integral stereo amplifier, with full tone controls, allowing direct connection of two separate speakers.

The Profeel tuner is a 12 programme UHF 6.0 MHZ unit, 430 mm wide (standard Sony Audio and Video rack width) with automatic digital tuning. It offers a variety of switching and controlling functions to optimise long term flexibility. The matching Teletext unit, also 430 mm wide, facilitates high definition text pictures and a Prestel adapter will be available next year.

The optional speakers are specially designed to avoid the problems that normally arise from placing speakers close to the yoke of the monitor, and offer top quality sound in mono and with the future in mind, stereo.



Profeel 20" Colour Monitor, Colour TV Tuner, Speakers, Video Rack the Component Television

Profeel employs two new techniques to achieve a new standard for domestic television viewing. Firstly, Dynamic Contrast which continuously examines the contrast level to maintain the picture within the optimum range, therefore negating the present day single contrast setting compromise. The result is seen as a new standard of sharpness and definition. The second technique is Dynamic Colour. The most difficult colours to reproduce on a television screen simultaneously are skin tones and brilliant whites. In order to get a brilliant white the colour temperature has to be very high, however, raising the colour temperature creates unnatural flesh tones. Dynamic Colour circuitry analyses the incoming signals and adjusts the colour temperature, as appropriate, to any particular colour. The net results is an apparent increase in the brightness of whites, whilst retaining realistic colours throughout the colour spectrum.

Taken as a whole, with its new standard of picture quality, its upwards compatibility with future technology and its flexibility in design terms, Sony believe that Profeel is the greatest advance in domestic television since the introduction of colour television itself.

SONY (UK) Limited
Pyrene House, Sunbury Cross,
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Middlesex TW16 7AT
Telephone Sunbury-on-Thames 81211
Telex 266371

Technology You Can Trust

Although both the IBA and BBC have no immediate plans to broadcast their television output in stereo, Ferguson have decided that this year is the right time to launch their new TX stereo sound receivers especially as they foresee the introduction of stereo video cassettes and video disc in the not too distant future. There are four Ferguson TX models with stereo sound giving a choice of having Teletext or not and in screen sizes 20 and 22 inches all of which will be available by the end of October.

1. 20" TX9 (model 37093) and 22" TX10 (model 37063) with Teletext have remote control of all functions.

A stereo indicator automatically lights up when pre-recorded video tapes or discs are being played, and when the receiver is in Supersound mode the Supersound indicator and stereo indicators light simultaneously. Separate LED displays for bass, treble and balance light progressively to show the exact degree of control when the audio mode is selected. To avoid distraction to the eye, when the TV picture control is resumed, the displays go out.

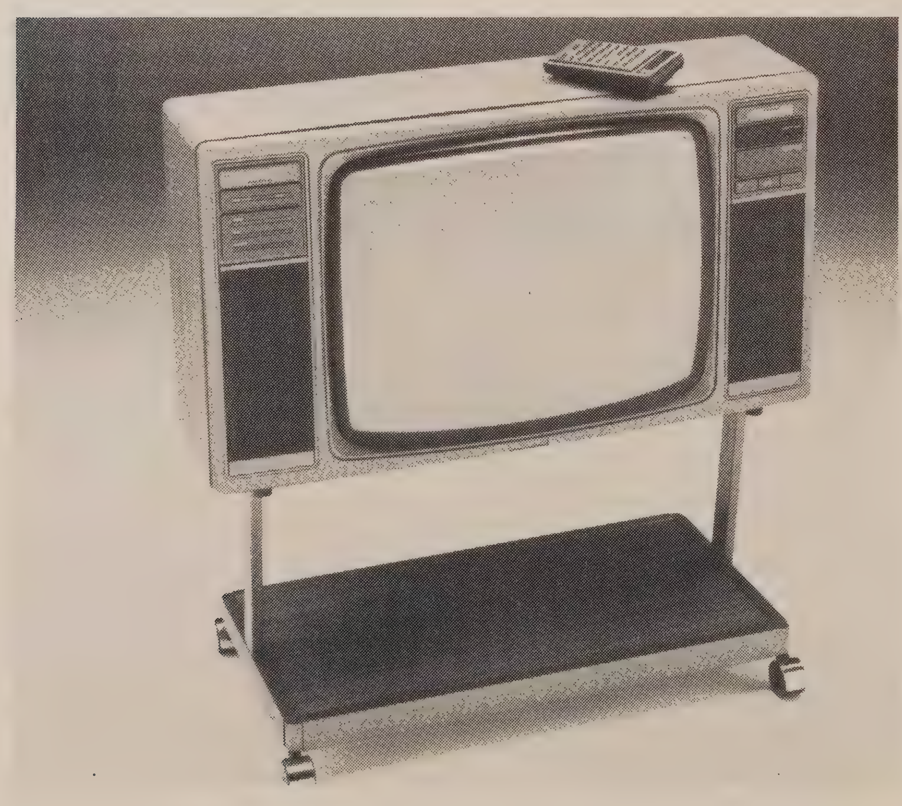
2. 20" TX9 (model 37090) and 22" TX10 (model 37060). These models incorporate sound switching for mono, stereo or Ferguson Supersound stereo effect and bass, treble and balance controls.

All models have In Line picture tubes with Hi Bri, fast warm up and soft flash protection and 8 pre-set channel selectors with AV synchronisation on channels 7 and 8 (video disc and video cassette respectively).

Audio output on TX10 models is 10 watts continuous power and on TX9 models is 9 watts speech and music power.

The sets are available in a choice of teak or walnut effect cabinet finishes and are supplied with matching stands which include a reversible teak/walnut video product shelf.

For further information please contact the Public Relations Officer at THORN EMI FERGUSON Limited 01-363 5353 ext. 2882.



Ferguson TX 22" Colour television with stereo sound and teletext, model 37063.

CABLE TV COMMUNICATIONS IN WESTERN EUROPE

U.K. based research programme indicates options for business in the decade ahead

Report by David Lazell

While the major characteristic of the U.S. scene appears to be the cable boom (and the legal wrangling over copyright) here in Western Europe the options are less clear. Behind-the-scenes infighting, sometimes associated with existing broadcasting establishments and political preferences, cloud the picture that would otherwise show the road to business in cable. Fortunately, there are many sources of sound information for the entrepreneur — but the best research is inevitably expensive.

In October 1982 CIT Research Ltd and Communications Studies and Planning Ltd (CS&P) will be producing their major strategic research report, Cable TV Communications in Western Europe, with a conference for subscribers. With many clients of international standing, CS&P has a special interest in assisting U.K. business, and has conducted the initial research for SelecTV, on the potential for pay TV systems in Northampton. The organization has also been assisting British Telecom in evaluating pay-TV (otherwise known as 'subscription TV') trials in Milton Keynes. CS&P, as a major consultancy in telecommunications and the information technology industries, has offices at Ridgefield, Connecticut, and in London (at Circus House, 21 Great Titchfield Street, London W1P 7FD). Formed in 1970, CS&P grew out of the Communications Studies Group of London University. Among fields of research in which its specialist personnel have been engaged are : teleconferencing; video and teletext; communication and broadcast TV. A market research subsidiary, CIT Research Ltd., specializes in cable TV, pay TV, satellite broadcasting, videodisc, VCR, telecommunications, and other areas of the electronic media. Recent publications and surveys have proved most acceptable to industrialists as well as academics and researchers, including 'Teleconferencing — The Opportunities and the Options' (1982) and 'Advertising, Marketing and the New Electronic Media' (1981), as well as many other titles.

In February this year, CIT Research and CS&P proposed a major strategic research programme, 'Cable TV Communications in Western Europe', though the February outline reflected on-going work in this field. This certainly accounts for the speed with which a really substantial research programme can be satisfactorily completed in a relatively short time-scale (though, here as elsewhere in the electronic media markets, continuing research builds necessary corrections and additions into marketing projections, etc).

To facilitate major decisions, a sound, systematic research programme has been developed, to use large samples across different countries in Western Europe, including the U.K., France, West Germany, Belgium, the Netherlands. The main objective of the study was defined as assessing how far and how fast cable TV services could develop in Western Europe. "The forecasts and projections will evaluate the size and structure of the potential market, assess the impact on existing markets (e.g. for broadcast services or advertising), and examine the commercial, technical and political strategies involved for key sectors and participants." Incidentally, the document defining the study may be obtained by writing to Alan Morris, Joint Managing Director, CIT Research and Communications Studies and Planning Ltd. at the address already indicated in this article (Telephone 01-580 5271).

The core report is supplemented by detailed 'modules' which examine specific areas in greater detail. These include Broadcasting; Subscription TV (Pay TV); Advertising; Technology; Special Applications, and Community Cable. All subscribers are expected to contract to the core report, plus individual modules as required. The core subscription — which is the minimum arranged — is £5,500, with individual modules at £4,250 each. Fees for the complete study are £18,000, and all fees exclude VAT (and other taxes) together with the costs of attending the subscriber conference in October. However, discounts are arranged on the following basis : core plus one module, 5% discount; core plus two modules, 10% discount; core plus three modules, 15% discount, and core plus four modules, 20% discount.

The core report has as its objectives (a) the generating of information to aid in formulation of public policy; (b) the providing of data for rational determination of commercial and strategic objectives; and (c) the defining of opportunities for manufacturers, publishers, carriers, software producers, TV rental/relay companies, educational and governmental bodies, and so on. A review of existing cable services is provided. Commercial, technical, financial, consumer and public policy factors are examined to provide a detailed framework in which national and international prospects in Western Europe, may be well defined. Forecasts of market potential (1982-1991) include methods of forecasting; forecasts by country, and projections by consumer segment.

Alan Morris has special responsibilities in this project, and, with Patrick Whitten, founded CIT Research in 1981. His experience in market research covers all aspects of survey design, implementation and interpretation. In addition to specialist experience in the use of advanced technology, Alan Morris is a member of the Council of the Market Research Society, and is an international lecturer, specifically on the implications of technology. He founded and chairs the Industry Study Group on Electronic Technology.

Patrick Whitten is Project Director, and the team of research and consultancy staff on the project has been created with the aim of an international multi-disciplinary project team, supported by additional consultants in France, West Germany and the U.S.A.

CS&P properly claims to be 'a unique blend of expertise in technology, business, public policy and behavioural sciences'. You need *all* that to anticipate the prospects for cable in the coming decade.

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ISSUE NUMBER SIX

Issue number six will be available in November and will feature part three in our Home Terminal Construction series. There will also be an interview with Ted Turner of the Cable News Network and Superstation WTBS and Bill Cotton Jnr, boss of the BBC's new satellite division.

The publishers would like to make it clear that the reception of television pictures not generally intended for direct broadcast could be in contravention of existing international law and copyright legislation. It is not our intention to encourage such practices and *if you are in any doubt* we suggest you contact the Home Office.

DID YOU MISS...?

All of our initial issues are still available from our Back Copy Dept., price £1.25 each plus 25p post and packing. Order from STV News, 41/47 Derby Road, Heanor, Derbyshire. Make cheques and postal orders payable to HRC Editorial Services.

SATELLITE
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FIRST DETAILS OF SATELLITE TV IN UK

ISSUE NUMBER ONE

A limited number of copies of our first edition are still available. Features include a review of the European proposals for direct broadcasting by satellite. We examine the satellites serving the world and take an in depth look at the American satellite explosion. We go behind the scenes of INTELSAT and examine some of satellites greatest landmarks. We take an exclusive look at DBS equipment and feature a guy in Britain who had been doing it himself since 1976.

ISSUE NUMBER TWO

The global coverage afforded by the INTELSAT network is examined in detail, as too is the MARISAT consortium. We look at the USA WESTAR satellites, the programmes that they carry and there is a comprehensive guide to the major USA parabolic equipment manufacturers. Also featured in UK manufacturers listing.

SATELLITE
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Number 2 · Spring 1982 · £1.25

ISSUE NUMBER THREE

The OTS bird and Satellite Television Limited is featured along with Soviet TV schedule and an update on the cable industry. We look at Andrew Antennas factory in Fife and reveal the technology behind Thames TV's "Top of The World"

SATELLITE
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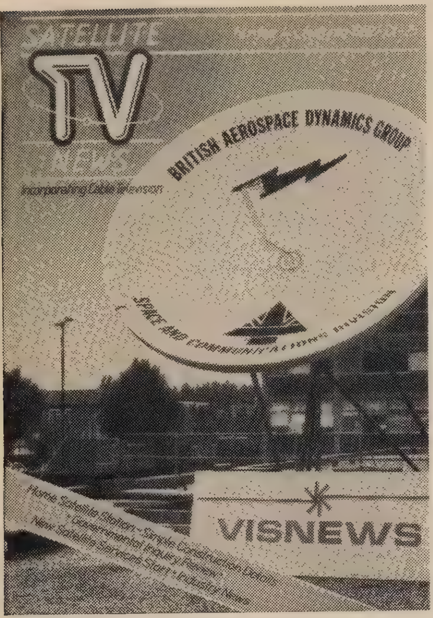
SATELLITE
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Incorporating Cable Television
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VISNEWS

ISSUE NUMBER FOUR

A review of the Government's cable inquiry, Bringing Moscow to the West End, Satellite TV Scrambled Programming and Worldwide TV Broadcast Code Systems are featured along with part one of our D.I.Y. satellite reception series and a look behind the scenes at the big British names in the satellite business.

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Do you own more than one colour TV set? YES / NO
Do you own a video tape recorder? YES / NO
Will you purchase a video disc player? YES / NO
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Post this reader survey to Satellite TV News Survey, 41-47 Derby Road, Heanor, Derbyshire, DE7 7QH, and enclose a stamped addressed envelope should you wish to receive a complimentary STVN car sticker.

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SATELLITE TELEVISION RECEIVERS

A British Manufacturers' Viewpoint

Much footage has been given to the technology and concept of satellite television broadcasting; much has been spoken with regard to American manufacturers and there has been some publicity on Japanese manufacturers' equipment. There has, in addition, been talk concerning some European manufacturers.

The British have been conspicuous by their silence in relation to the technology, their own product development, their prices, marketing and the many other attributes that form the mix of this new potential market. The market has been compared to the social impact of the railway system in the 19th century. Such market potential has not been overlooked by some British manufacturers.

The following are a number of questions put to SAT-TEL of Northampton together with their responses:—

How far has your Company reached with regard to product development for 4 GHz and 12 GHz reception?

The question needs some initial pre-amble before answering. However, I will answer the question immediately and provide the pre-amble afterwards. We have no 4 GHz equipment available but 12 GHz equipment is available **NOW.** On 4 GHz reception; we have undertaken no development whatever in this area because the WARC frequency planning of 1977 allocated 12 GHz equipment for DBS. However we will have a 4 GHz version available if the market develops in that direction. In the United Kingdom and Europe one can, at the present time, watch 4 GHz Russian television but I believe this is a novelty, as despite the rumours about the Russians sub-titling programmes in English, this has not happened and at the moment very few people speak Russian.

With regard to 12 GHz equipment, our unit is available now on 16 weeks delivery and unlike many of the units available, we are offering a full band unit and not a half-band; therefore the unit can be used to receive OTS initially and subsequently can be used to receive DBS.

What is the technical competence of your unit?

We consider that its technical competence is as good, if not better than, those units currently available but I think you must consider that the equipment is made from three separate sections: (i) the dish; (ii) the outdoor electronics and (iii) the indoor electronics. I will not talk at this stage about the dish — perhaps more of that later. The outdoor electronics, I consider, represent a major technological challenge and it is well worth quoting from an American magazine giving some of the background. I quote: "The front end portion to be built in seemingly simple mini dishes that will be purchased by millions of viewers, offers a severe test of design and ingenuity. It is an area of intensifying international competition. The 12 GHz signal from the satellite must be converted into an IF frequency for further processing in a small box on top of the viewer's TV set or cable head. (I personally believe it is only a matter of time before those indoor electronics are incorporated within the television). Not only must the receivers convert the 12 GHz transmissions into high quality TV images, but they must also be designed for fabrication on automatic production lines with little or no tuning and, obviously when the volume get up, it must be accomplished at low cost. Really, never has microwave technology of this sophistication been used in what will be a consumer product. The technology that is used is of the same basic design as advanced military radar or missile seekers of recent use in the South Atlantic.

There are really three different schools of approach. The technological development can be achieved by a mixer down convertor system rumoured to be very difficult to set up, but certainly at the present time inexpensive to produce but, when components develop, I suggest that the long term advantage of cost will be lost and the complexity of the design will then become its Achilles Heel. The second method concerns the use of gallium arsenic field effect transistors, commonly known as 'GaAsFET' integrated circuits. This last option mentioned provides, certainly in the long term, a very good solution but the technology is not there in reliable form. Certainly it is available in research laboratories but not for a production run. We have therefore plumped for the 'GaAsFET' hybrid system which can be modified when the IC component is developed. Furthermore, we have designed our unit to be a full band one in that it will cover both OTS and the direct DBS satellites once they are up and running.

As mentioned the technology is more akin to microwave technology as used in the radar business. The substrate material traditionally used is alumina or quartz. We have moved away from this material and have gone down the road of employing one of the new materials which are now becoming more easily obtainable. Production of the whole outdoor electronics is on one printed circuit board, which will be incorporated within a box X cm X cm X cm, thus making it ideal for either prime focus feed or rear of the dish mounting.

I think that the above points show that our product is very competent and better than anything else at present on the market but one cannot be complacent — British Industry has suffered from that complaint for far too long. The product is designed for constant evolution and we are 'plugged into' the technical universities and other research establishments; our product will evolve naturally to develop the new techniques that are becoming commonplace every day of this fast moving age.

What is your opinion of political developments affecting direct broadcasting?

At the moment we have been granted approval by the Home Office to receive satellite television's broadcast by Satellite Television PLC. We have seen Malta, Finland

SAT
TEL
Satellite Television

SAT-TEL Indoor electronics

and Norway give approval to satellite television for cable systems. I believe it is only a matter of time before many other Countries also give such approval and, in the early days, the cable TV Companies will be best served by this agreement. At the present time, they will be protected by the use of de-coding systems.

Might I at this stage, paint a scenario for you. The present de-coding systems are extremely complex but what if a copy became available in the United Kingdom? If therefore, satellite television broadcasts were not protected by decoders, would we not see a rapid expansion of direct broadcasting terminals — illegal, agreed — but I think that unless British manufacturers recognise that the market is coming it is only a matter of time, before we have a scenario developing similar to the CB business of four years ago. Did not such a business develop, illegally, that left British manufacturers in the cold and had the Japanese laughing all the way to their tea houses? Our Company will be there to obtain some of that new market. We feel that from a political point of view, if a British manufacturer can offer a good product at a competitive price the people of this Country and many other European countries will welcome the opportunity of buying it.

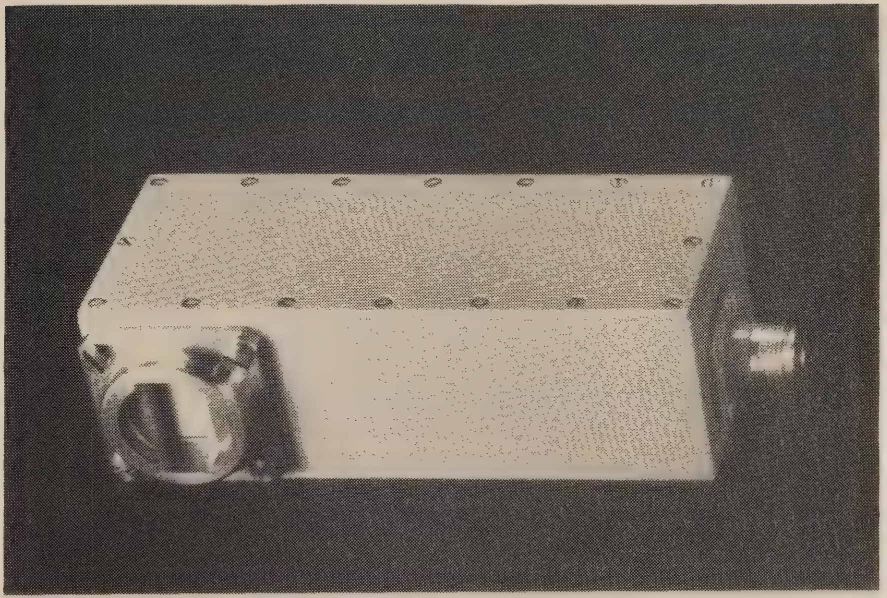
I only wish the politicians would recognise that DBS is coming sooner rather than later, whether legally or illegally, and that British manufacturers must have the opportunity to meet that challenge. A further point, many people say that satellite television should only be used on cable networks. The proposal is to cable 50% of the population of this Country, costing some £3,000 M, privately financed. By the time that factor is being understood, orders placed, cable routes negotiated and agreed, customers signed up and orders completed of the magnitude proposed, we will be in the late 1980's (well into the DBS age) — then only 50% of the population will have been served. Will we not see people wishing to undertake to install their own direct satellite terminals? I believe we will. Please, politicians, for the sake of the U.K. industry, realise this and agree to direct broadcasting sooner rather than at Japan's convenience.

Do you see any other programmes apart from Satellite Television PLC developing until the national satellite development programmes are undertaken?

There is no doubt that Brian Haynes, with the Satellite Television company, has demonstrated considerable entrepreneurial spirit. The success that I believe awaits him will not be lost on the organisations and, given the hardware to obtain a satellite slot, I think we will see other parties undertaking a similar development. Again I stress, we must recognise this potential and ensure that we have the product to meet the market as it develops.

What price level do you see developing and how will you compete?

This is a very interesting question as it raises massive conjecture for the future but let me say for the moment that we will see many foreign companies trying to distribute their goods in the United Kingdom, and the only way they can do this is by means of middlemen. The technical complexity of the product will be such that those middlemen will exist whilst the enthusiast sets up and drives his own terminal. I happen to believe their days are numbered because what will be required will be a greater degree of infrastructure to support the product. In the early stages, therefore, those middlemen will tend to keep the prices a little high but, at the present time, a full band receiver from us (inclusive of all indoor and outdoor electronics) costs £3,000 odd. When the sales volume increases the price will drop dramatically and I think that in a few years' time it will be at the level of today's colour TV, video tape recorder, video disc player. There will be a cheaper version as well as the more expensive one, but generally speaking the area of prices we are talking about will only apply once sales have soared.


SAT-TEL Outdoor electronics

How do you see your product being distributed efficiently?

This type of high technology needs to be supported with the setting-up skills required to locate a small satellite somewhere in the southern sky's horizon. The actual skill of installing it will be quickly learned but it must be supported with an efficient local distribution chain. We will therefore be appointing agents to complete installations and undertake front-line maintenance.

Do you see a Company like yours competing with the likes of Philips and NEC?

No, I wish I could but the financial implications are such that they are too large to compete with. I repeat what I said earlier; given a good British product, good support, and good value I believe people will buy it. We have too long been dominated by the Japanese and some of the big European companies, for example Philips; yes, I think they would have liked to have got together with the Telefunkens of this world to produce a consolidated front against the Japanese, but do not let us kid ourselves, they are not, unfortunately, in a terribly fit state to do this and, of course, Thompson CSF are French and would do their own thing whatever happened.

What of U.S. technological competence?

The U.S.A. is indeed an immense technological and industrial machine but I ask, have you tried to deal with small American companies recently? We have and we are not too impressed with either their organisation or their response. With regard to the technology, they have been concentrating on 4 GHz and whilst they certainly have the competence with 12 GHz, it is very interesting to read a recent report by James Fawcette of Fawcette, McGrath, San Francisco, publishers of international business reports, where the headlines for the article was 'Direct Satellite TV, the 12 GHz Challenge, Japan and Europe Take Lead in Developing High Frequency Circuits and Mini Dishes for Space Casting'. I do not feel qualified to add any more than those points made by James Fawcette. May I add a further point, however; I do honestly believe that the challenge will come from Japan; I do not believe the political will exists for us to increase the trade embargo to stop them. Voluntary restrictions do not seem to have any impact on them. I have to be careful what I am saying as I feel very strongly about the matter. I have watched Japan's industrial machine for a number of years — it is efficient but has few scruples and does not care about this Country. There are too many instances of Japan ignoring a Country and in our own way we hope to obtain at least some of the market.

Thank you for your time.

Might I say that if any of the readers are interested in agency or purchase of this equipment, please contact me. **We can supply.**

J P Knowles
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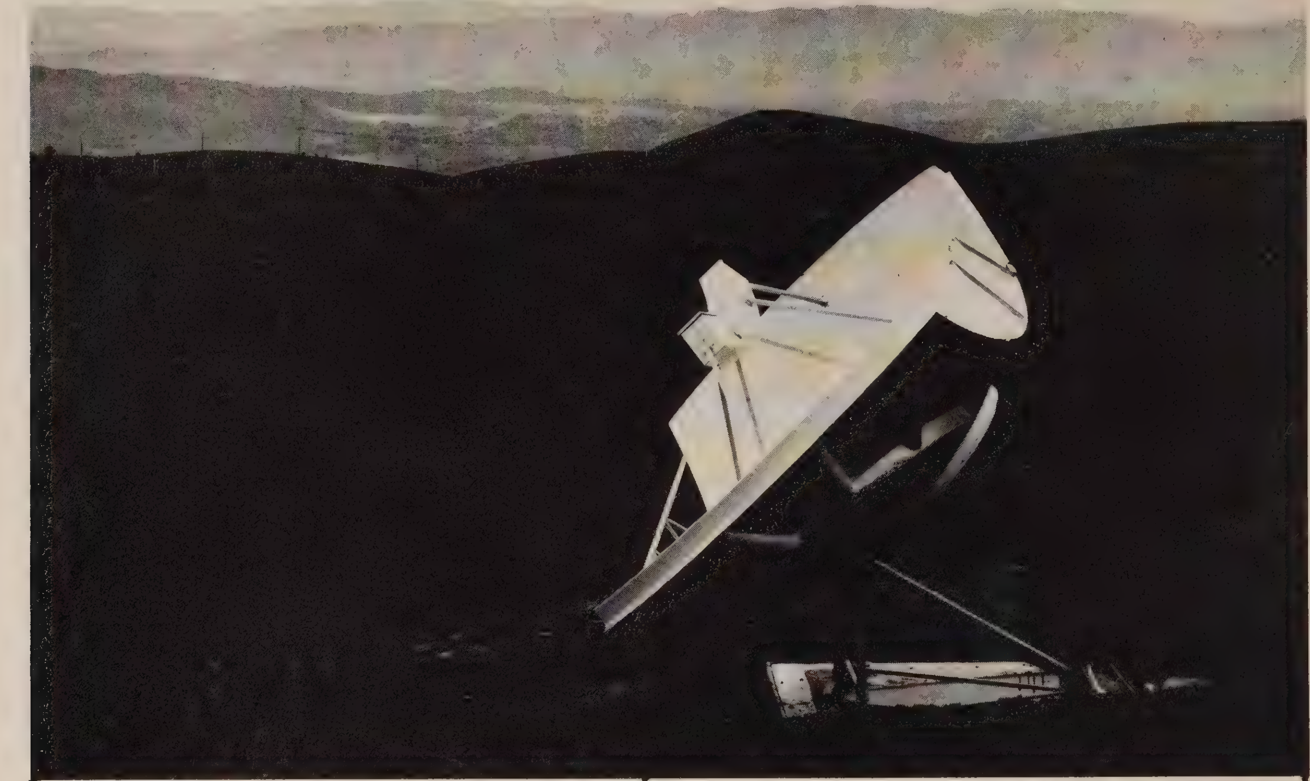

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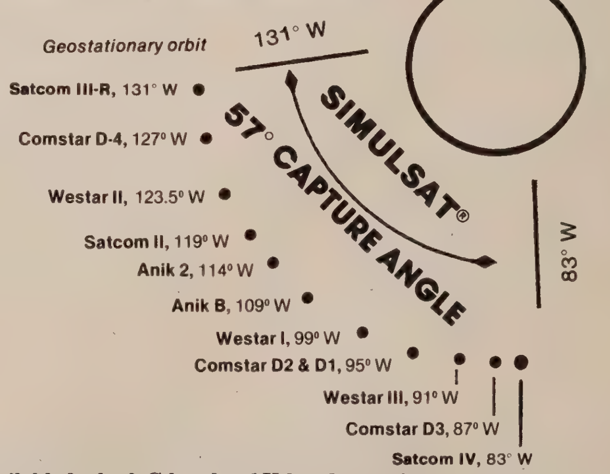
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4 GHz TVRO demonstration in Wales

Satellite TV Antenna Systems Ltd. of Staines recently mounted a display of TVRO hardware at their factory site at Builth Wells, Powys. A three-metre Prodelin/Apollo antenna fed a selection of receivers to deliver Russian, Argentine, French, Middle-Eastern and African programmes to a Barco professional SECAM monitor and a Sony multistandard receiver. A Barco PAL monitor showed recordings made earlier from the transmissions of Satellite Television via OTS. Steve Birkill provided a receiver for high-quality Russian reception and a narrow-band demodulator for the below-threshold signals.

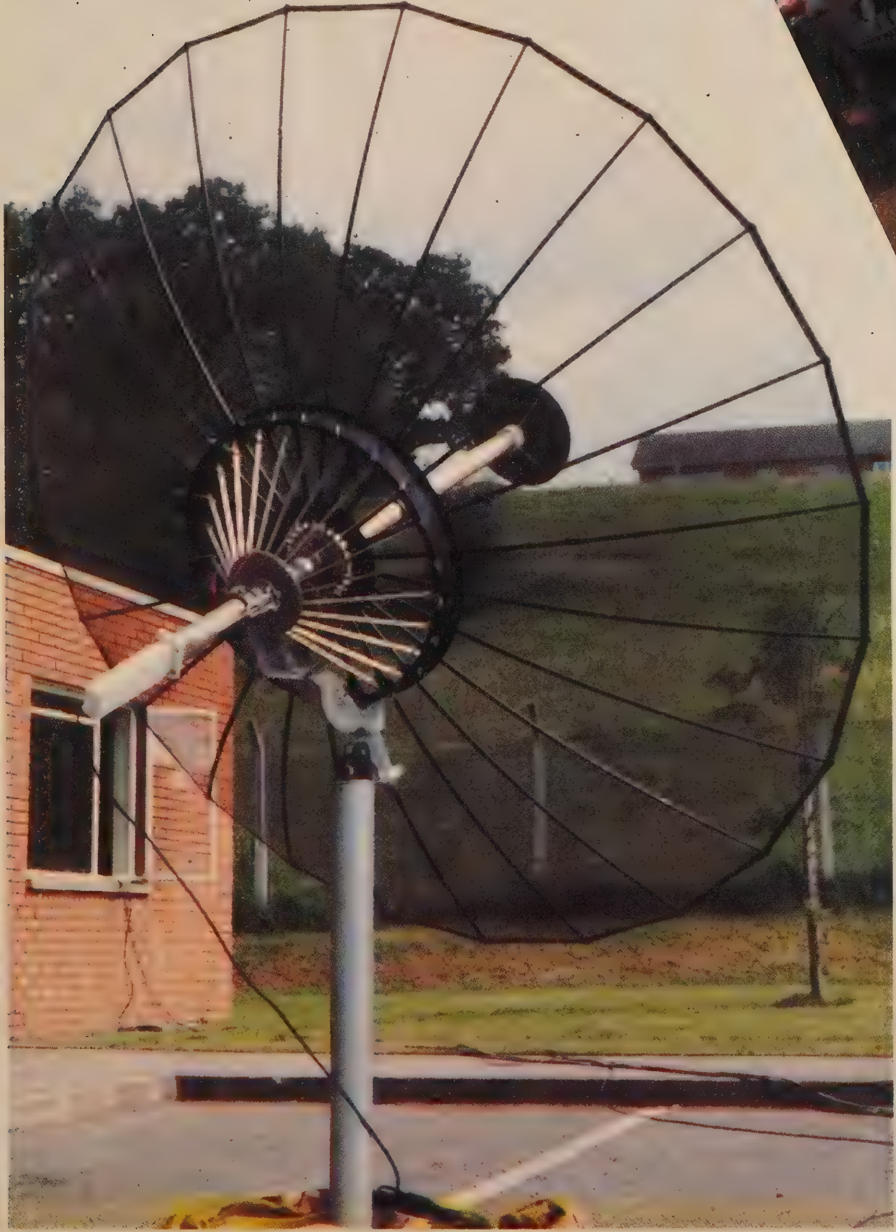
WALES IN THE 80's
SATELLITE TV ANTENNA SYSTEMS LTD

Satellite TV Antenna Systems Ltd demonstrated 4 GHz TVRO at the Royal Welsh Show, alongside the Information Technology caravan.

Also on show was an 8-foot collapsible antenna by Luly Associates. This is of novel design of metallised woven fabric on dielectric ribs, modelled on a space-deployable satellite antenna, and folds away umbrella-fashion for transport. The feed is of the circular waveguide and splashplate type, closer to Gregorian than Cassegrainian. An Apollo Z-1 tuner was connected to the Luly antenna and displayed Moscow TV via Gorizont throughout.

Two weeks later the 3-metre dish went up again, this time on the stand of the Development Board for Rural Wales at the Royal Welsh Show, Builth Wells. The system operated throughout the four-day show.

Steve Birkill has been working closely with Satellite TV Antenna Systems Ltd. to achieve capability for all existing satellite services, C-Band or Ku-Band. 1.8 and 3-metre TVROs are available for OTS, ECS and Gorizont, and 6-metre and 8-metre units are under development for Symphonie and Intelsat reception, with an eye to the export market. Satellite TV Antenna Systems Ltd are U.K. agents for the American TVRO hardware mentioned here, and will shortly announce their own antenna and 11/12 GHz receiver.



TRANSPARENT DISH!
Luly Associates umbrella antenna in operation at Builth Wells in July.

Down Link/News Line

Advanced business communication — including the teleconference for top executives — is getting a lot of the limelight in current announcements on satellite use. In July, it was announced that IBM was negotiating with British Telecom (sometimes known as 'BT' these days) as well as British Aerospace, for a mid 1980s satellite project, which would handle telephone calls, teleconferences and high speed computer data, on a trans-Atlantic basis. A business-financed satellite, Unisat, would be used for this electronic traffic transmitted between Britain, and the eastern U.S.A. and Canada. Incidentally, Unisat is being financed by British Telecom, British Aerospace and GEC-Marconi, and, scheduled to go into orbit in 1986, should be among the first to directly offer benefits to business on both sides of the Atlantic, since it will also handle broadcasting and other communications. Its footprint is reported to be several thousand miles wide. However, whilst more details of the Unisat project will be available by the end of 1982, British Telecom is first to complete its negotiations with Intelsat, which, as you no doubt recall, is the international government-backed organization set up to supervise and control satellite use. Unisat, however, will be one of the world's more powerful satellites, and may even help Intelsat by leasing some of Unisat's capacity for telephony between countries on both sides of the Atlantic. Unisat will cost around £150 million, and IBMs main interest here is reported to be in the supply of sophisticated earth stations, mounted on office roof-tops, etc. — an interesting adjunct to IBM's highly regarded office hardware today. IBM is not expected to have any stake in the Unisat satellite itself, but will certainly become increasingly active in advanced communications here in Europe.

Meanwhile, British Telecom has been associated with another project that will provide high capacity communications for U.S. business, by providing a link with SBS (Satellite Business Systems). This is a joint venture shared by IBM, Communications Satellite Corporation and the Aetna insurance group. The dramatic and promising developments in this field are being widely reported in the business press in Britain, including 'The Financial Times' (an excellent source of information, by the way) — and this is surely a clear indication of a soon-to-come revolution in our everyday communications experience.

Many American corporations, with specialist experience in cable and/or satellite broadcasting, are taking a keen interest in developments here. One trans-Atlantic company, Cablecasting, has made its own submission to the Hunt Committee, and has indicated that it would be ready to share in joint ventures with British investors, or as partner with British Telecom. Cablecasting can certainly speak from a great deal of good experience. It already provides cable television to six cities in North America. In its submission to the Hunt Committee, the American company recommended cable systems for between fifty thousand and three hundred thousand homes, the areas preferably coinciding with existing community (e.g. town) boundaries. So, when that cable does get laid down your street, don't be surprised if you hear an American accent or two.

Meanwhile, Milton Keynes, home of the Open University, and a town with a go-ahead outlook, has been chosen for an experiment indicating the 'wired future' we may all share. Some eighteen families are using an experimental telecommunications fibre optic cable network, installed by British Telecom. Cable television is already provided to homes in Milton Keynes, in association with SelecTV, but this new technology offers far more than conventional television. Its potential really underlines the fact that 1982 is Information Technology Year. Teletext, educational and information services, Prestel, and the normal television network programming can all be fed along the fibre optic 'wire'. The experiment, known as 'Fibrevision', will continue for about two years, to see how consumers react to the kind of services that are available, but, of course, the real potential of fibre optics is far more than could be offered in this limited but interesting experiment. The Chairman of British Telecom, Sir George Jefferson, underlined the importance of fibre optic's 'potential interactive capacity'. In effect, this form of what is sometimes called 'two way TV' "opens the door to such services as home banking, shopping, security systems, and electronic mail." If you are interested in that subject, by the way, don't forget the TAB paperback on 'Talk Back TV' by Dr. Richard Veith (around £5). Published by Foulsham, this TAB title is still one of the best books around on the experiments with cable in the U.S.A. (it was written as a doctoral dissertation a few years ago, in 1976, in fact).

While some organizations are calling for unregulated growth of cable, assuming that this would really be possible, the BBC, committed to two satellite TV services in the mid 1980s, has its doubts.

Perhaps looking at some of the lurid stuff on videotape, the BBC suggests that unregulated proliferation of cable would 'sacrifice hard-won programme standards and coarsen popular taste'. The shades of Sir John Reith are not quite departed yet, we are pleased to note. Thus, the Corporation, donning its traditional Auntie image, argues that the government should permit the growth of new cable broadcasting only under definite official controls (and as may have been noted, the present government, is not entirely given to bureaucratic controls and the employment of more civil servants to enforce the rules). Still, the BBC is probably right. In the U.S.A., public video (i.e. television) is getting more than a few sharp words, even though private video (video recorders and tapes) are often deep blue these days. The Coalition for Better TV is made up of various social, reform and educational organizations, and have around four thousand volunteers who carefully monitor the output of the three commercial networks. To be fair, one has to say that these folks are not kill-joys, but they are fed up with suggestions of sexual intercourse, bodily violence to human beings and gratuitious profanity. Shows get a 'constructive' or a 'least constructive' rating according to the artistic merits and all-round entertainment value (free from the nasties mentioned above). We have to report that some shows bought in for British TV are included in the 'least constructive' rating. However, the force of the argument gets to the sponsors whose products are shown during the commercial segments. Any food company having its product advertised during a show deemed to be unusually violent, or sexually suggestive, gets it in the neck by way of complaints in the mail, and even worse, boycott of their products. We mention that, just to show that cable operators may well be as respectable as they can be, here in Britain, with the consumer movement as active as it is right now.

Of course, the general public may be over-sold on the cable prospect. The idea that a number of regional/local stations could start and offer new kinds of programming, on a commercial basis and competing with the major networks, is perhaps a little naive. It's assumed that the new broadcasters would **not** be associated, or in any way connected with the existing commercial networks. For that reason, local/regional newspapers argue that they should have a legal right to buy into local/regional cable stations (a) because of their expertise, news gathering resources, traditional association with the area, and (b) because folks might stop buying local/regional newspapers and use the cable for their news instead. After all, the classified advert of the cable age may be contacted via a few keys on your Television/computer console. Among the best detailed arguments, from the business point of view, comes from the Confederation of British Industry, in its submission to the Hunt Inquiry. The more that arguments focus on the broadcasting aspect of cable, the more likely the discussions are to get bogged down in arguments about controls. The CBI believes that cable television should be combined with a wide range of new communication services to offices and factories, as well as homes. No doubt, offices and factories would be the first to invest in the necessary hardware. The CBI understandably wants some quick action on the part of the government, so that some general framework for development can be mapped out. With the high cost of cable, it is more likely that development will actually come through a number of local networks. A monopoly

SATELLITE TV NEWS

situation could conceivably arise one day, but the CBI doesn't think any one organization has all that's needed to cable the country. It's interesting to note that the CBI document suggests that 'the present obligation on cable operators to relay BBC/IBA will be temporarily withdrawn', assuming that other easy ways of getting the established networks are available. This is one of the many bones of contention, since the BBC certainly does not want this obligation withdrawn — not at this stage, anyway. But equally, the CBI notes that 'advertising will be permitted on cable networks, subject to a self regulatory Code of Practice' raises other arguments, too. The Advertising Standards Authority (ASA), the industry's self-financed, self-regulatory board for standards in advertising, is apparently unsure whether cable television will be defined as broadcasting or publishing. The definition will largely shape the kind of controls that are placed on advertising, on the new cable stations. For example, though cable stations may beam, or feed, their programmes to, say, a hundred thousand homes only (modest enough to be called 'broadcasting') it may have to be supervised by the Independent Broadcasting Authority, or a new body similar to it. The IBA could, conceivably, have a new off-shoot to look after cable, assuming a good supply fo headache tablets and a vast amount of imagination. Little wonder that, in running a report on the ASAs submission to the Hunt Inquiry, the industry's leading trade magazine, 'Campaign' (18th June issue) commented, "Cable television bosses are still in the dark about the extent of the controls likely to be imposed on their advertising in Britain." Well, that makes at least two of us!

As far as advertising is concerned, cable could get as much as four percent of the country's total advertising revenue, by the mid 1990s. That, at least, is the view of the IPA, the professional organization for advertising agencies and their members. In fact, the Institute of Practitioners in Advertising takes a duly optimistic view of the possibilities. Cable could collect advertising revenue of some £120 million by 1995, at 1980 prices, the IPA told the Hunt Inquiry. It will increase the general volume of advertising, and not pose a threat to existing commercial television — and there should be no diminution of programme standards. The IPA proposes that a minimum of thirty channels be provided, with some stake by those companies capitalizing the cable network itself. Not that the IPA proposes a free for all, we must add — in fact, it seems to regard cable as an extension to what we already have by way of commercial television, but with far smaller markets/audiences, and thus the opportunity to generate more local or regional initiatives. Actually, the problem of regulating advertising on cable would be the least of the Hunt Inquiry's problems: there's enough consumer legislation, plus the good deeds of the ASA, to keep standards reasonable. The problem would be in the way that local or regional newspapers managed to compete for that advertising: it would be ironic if cable became the local newspaper of the air, only to take the local newspaper off the street!

The big question is still : where will the programmes come from? Latest from the States is that the day of the long running series (or soap opera) — much loved by British programme planners because of their low cost to us, after their profitable time on U.S. screens — is drawing to a close. Audiences are more selective, and moving from network shows to the satellites, which have greater variety (and few soap operas of the Dallas ilk). Ironically, at a time when Britain has more time to fill, the supply of U.S. stuff isn't what it was. The large amount of repeats on British screens this summer could be the shape of things to come. Westerns have fallen out of favour in the U.S., though real vintage B Westerns, with the old stars in monochrome still get their late night audiences — the old nostalgia trick. Good mini-series, or TV drama specials are getting some good production in the States, but they are not cheap. Satellites and cable have thrown a new kind of spanner into the works — or the **net**works! Last year, it was estimated that some 10% of the 77.5 million TV equipped homes were, at any time, watching something other than the networks, including cable, satellite or maybe even video. It's estimated that within the next few years, the well-established commercial networks in the U.S.A. will lose 20% or even more of their audiences to the new TV. That's going to cause havoc with the advertising rates, and a whole lot more. The new fickleness of public taste has something to do with the new forms of 'public broadcasting', i.e. programming without commercials. But that, as they say, is where we came in!!

Well over a hundred submissions had been made to the Hunt Inquiry by the end of June. The members of the Inquiry will continue to receive submissions until the end of September — an extended deadline, since an end of May date was originally proposed. Maybe the last word should go to a comment in a major trade paper, where a contributor complained that paying over £200 to go to a conference on the future of broadcasting — merely to hear all the same old arguments — was losing its novelty. Someone ought to start a book, a gentle bet that is, on the size of the Hunt Inquiry Report. Given all the input to the hard working committee, it should be some epic-sized piece of literature, and a whole lot more interesting than much of the stuff we've watched on TV this summer.

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VISNEWS

Few people will have heard of VISNEWS outside of those connected with television and its affiliated industries yet this year this international giant celebrates it's Silver Jubilee. Like the UPITN story (featured in the last issue) the Visnews story is equally interesting and has a history not un-parallel to it's rival. Visnews takes up it's own story......

Visnews was formed in 1957, on the initiative largely of the BBC. Television News was expanding in Britain, and extending throughout the world. The need for more and wider sources of film material was apparent. The only broadcasters who appeared likely to have the financial resources to build a worldwide coverage network were the American networks, and it was thought that some non-American sources would also be valuable.

Thus the BBC and two other British Commonwealth broadcasters, the Canadian Broadcasting Corporation (CBC) and the Australian Broadcasting Corporation (ABC) joined forces to establish the British Commonwealth International Newsfilm Agency (BCINA). The Rank Organisation was also involved, both as a shareholder and a provider of the necessary technical facilities — largely in those days film processing, printing and handling capabilities, and a base was established in London.

In the same year, the first subscriber contract was signed, with the Cyprus Broadcasting Corporation. The first overseas office, at Hilversum in the Netherlands, was established in 1958, and so was a second — in South-east Asia.

The Company's first representative in the United States was appointed in 1959 and Reuters became a shareholder in 1960.

In 1962, an agreement was negotiated with the National Broadcasting Company (NBC) in the USA to provide full and close co-operation in the supply and exchange of television newsfilm — an association which continues to this day — and the next year the number of subscribers passed the 50 mark.

In 1964, "Visnews" — the Company's telegraphic address — was adopted as its official name. The first satellite transmission of a news story occurred, and all broadcasters in Eastern Europe became subscribers.

The following year, the New Zealand Broadcasting Corporation became a shareholder, syndication points were established in Sydney and Singapore and all Australian television broadcasters became subscribers.

In 1966, all African countries which then had television had become subscribers, and a special Africa Service to meet their needs was established. The number of subscribers passed the 100 mark that year, and the Company also began to provide film production services outside the news field — to broadcasters and other organisations.

With the other television news agencies, Visnews began to participate in 1967 in the Eurovision news exchanges, upon their inception. The following year, the Rank Organisation withdrew from its shareholding, and Reuters — with the BBC — became a major shareholder. Construction of a colour film laboratory was completed, and a documentary unit established.

THE PAST 25 YEARS

An electronics department was established in 1970, as video collection and transmission of news began to become reality, and the next year a service of telecine slides illustrating notable people and places was begun. All major Japanese networks had also become subscribers.

The number of News Service subscribers passed the 150 mark in 1972. Construction of a new London headquarters was commenced in 1973, and Visnews was also commissioned to establish film units in two Nigerian states. All West European and Arab television broadcasters became subscribers.

Visnews Productions making "Journey of a Lifetime" - the story of the pilgrimage to Mecca (Makkah).

In 1974, the first Visnews training course for overseas — mainly Third World — broadcasters was held and an agreement signed with NHK Japan for full and close co-operation in the television news field.

The new headquarters building was completed and occupied in 1975, and in the same year the world's first daily satellite news feed — from Visnews London to Australia — was established.

The Japanese and Hong Kong broadcasters began to participate in that transmission the following year and a separate feed, tailored to meet the requirements of Middle Eastern broadcasters was commenced. The number of News Service subscribers had passed the 200 mark, and Visnews was contributing 27% of all items on the Eurovision news exchanges, the biggest single contributor.

Visnews strengthened its links with the developing countries still further in 1977 by founding the Visnews Fellowships in International Television Journalism to mark the Company's 20th anniversary. An independent Board of Trustees was set up under the chairmanship of Monsieur Jean d'Arcy, President of the I.I.C. to administer the Fellowship Fund which provides opportunities for two or three journalists from developing countries to take part in a 12-weeks programme each year. The programme takes the Fellows to the United States, Canada and various European countries to meet senior television executives and to see the latest techniques in use for the coverage and distribution of television news.

In 1978, a daily satellite transmission to North and South America was established. The following year saw operational use of ENG equipment by Visnews begun, and the establishment of another daily satellite transmission, from New York to the Asia-Pacific area. A fifth daily feed to Southern Africa was established in 1980.

Distribution of the News Service in 1981 is by a variety of means; direct reception of the satellite transmission; onward shipment of video cassettes from some of the satellite reception points; terrestrial line transmission, in Eastern and Western Europe; and air freight shipment of film or tape. In mid-1981, film shipment was almost wholly replaced by videocassette delivery, to maximise picture quality and minimise cost increases.

The news collection network is based in London, but is dependent on the closest contact with 15 bureaux in major capitals, which have a responsibility for seeking out, recommending and covering news stories in their own regions, and some 400 cameramen, mostly freelancers, in most countries of the world. Exchange arrangements also exist with broadcasters — particularly in Eastern Europe — by means of which a flow of news material from those places is maintained. In all cases, the original source of material supplied in the News Service is clearly identified.

In 1981, the Company can expect to spend some £8.5 million on its news operations, subject to fluctuation according to the general pressure of news activity. A large and sustained international story like the situation in Iran in 1980 can dramatically affect coverage costs, as does the need to keep pace with technology in both the collection and distribution of news.

The possibilities brought by ENG and satellites have greatly enhanced the expectations of News Editors and of their audiences. There are very few news stories in very few places which cannot now be seen worldwide on the day on which they occur; the technology is widely available, the financial capability of many broadcasters may not match it.

The cost to subscribers of the service varies according to many factors; the size and wealth of the countries in which they operate, the size of their audience as measured by the number of television sets; the technical sophistication of their broadcasting — is it colour or still in monochrome; and the preferred method of delivery — whether by satellite, landline or air freight shipment. But it is worth mentioning here that Visnews was established under a Trust which makes no provision for the distribution of profit to the shareholders. It still operates in that way, and any surpluses that arise are ploughed back into equipment and manpower to develop the Company's operations.

The structure of the Company is based on three operating divisions, with central support services. News Division is the largest, covering the News Services itself, special facilities for individual broadcasters, the Film Library and Slide Services, and accounts for around two-thirds of the Company's annual revenue. Productions Division provides documentary programming and other production services to broadcasters and other organisations, and Broadcast Facilities Division supplies technical facilities round-the-clock to the News Division,

broadcasters and commercial clients. This Division, which has expanded rapidly with changing technology, is capable of working in all major line standards and VTR formats — from 2-inch to half-inch, can readily provide conversion and studio facilities 24 hours a day or direct satellite links to anywhere in the world.

Future plans for Visnews' News Division are based on consolidation and expansion of all its present activities, with the News Service moving steadily towards still greater deployment of electronic systems in both the collection and delivery of television news material. The development of cable television and direct broadcasting satellites will inevitably help to shape the future direction of television journalism and Visnews will be playing its full part in that development.

Mahmoud Oskoui - Award Winning Visnews cameraman filming at a demonstration against Russia, organised by the Afgans in Teheran 1981.

Similarly, the Company's other activities will be geared towards participation in what has been called the information revolution.

This has been commenced this year with the establishment of two associate companies; World/Visnews Broadcast Services & VIBA Communications, and a new, wholly-owned subsidiary, Viscom International (USA) Ltd.

Wold/Visnews Broadcast Services is a joint enterprise with the Robert Wold Company of Los Angeles, linking Wold's facilities and expertise in the US domestic satellite system with Visnews' own on the international network of Intelsat satellites. It provides these services for broadcasters and business communications and is based in the Empire State Building, New York, and the Hall of States Building, Washington DC. Editing and satellite transmission facilities are in place at both of these locations.

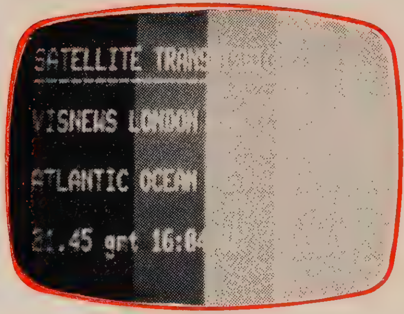
VIBA Communications combines Visnews' capabilities with the wide-ranging expertise of the Charles Barker Group in corporate communications (financial advertising and public relations). VIBA is based in Farringdon Street, City of London.

Viscom International (USA) Limited is based in New York, and markets all Visnews' commercial services to US clients.

With its very considerable experience already in the frontline of communications technology, its deep associations with broadcasters, its global reach and wide range of facilities, Visnews is ideally placed to move ahead as the new developments become established.

Satellite Transmissions

Visnews has a daily satellite despatch with four services supplied direct from their Park Royal London Offices located incidentally within the shadow of the mighty Guinness brewery. The first transmission of the day is at 2.30 GMT and is forty minutes in duration servicing the Middle East and Eastern Europe. At 17.00hrs a ten minute feed is transmitted for South Africa, and A.B.C. including Iceland and Finland. Their 21.30hrs ten minute segment is for Asia and the Pacific and at 21.45 North America and Latin America is catered for with a further ten minute transmission. There is a fifteen minute service for Australia and Japan which is broadcast from their New York office. All pictures are in colour and most of the coverage is delivered with natural sound. Each story averages about 1½ minutes and is accompanied by optional commentary information. Each subscriber to the Visnews service receives on average 140 minutes of tightly edited news stories each week and like UPITN they too have reciprocal arrangements with the USSR and the USA, other Eastern broadcasters and the Peking Television. They are of course able to supply special satellite feeds when a big news story breaks.



Along with its television news library, sports service and location specials Visnews is also able to supply its subscribers with up to the minute slides and maps on 35mm format specially designed for television and covering most countries in the world in all languages.

Broadcast Facilities

The Broadcast Facilities Division of Visnews provides, at the Company's Park Royal, NW10 headquarters, the widest range of video and film services under one roof in London.

The division has facilities to record and transmit television material via permanent telecommunications lines to and from other UK broadcasters and facilities houses, the Eurovision network, satellite ground stations and thus all national and international TV distribution networks.

The video tape department is capable of transferring and copying material between most tape formats currently available and carrying out conversion between the various television line and colour standards. The department also specialises in rapid video editing (but does not yet have sophisticated computer editing or sound dubbing).

Two telecines can handle 16mm and 35mm film and can transmit on 525 or 625 line standards directly, or transfer to produce a master video tape for copying or transmission purposes.

Telerecording channels enable transfer from tape (or line input) on to 16mm colour film. A 2-camera interview studio can be fed to line, or its output recorded on broadcast standard video tape machines.

The studio facility also includes self-contained BVU recorders for local recording, play-in or editing, and the mixer unit provides a variety of mixes, effects, captions, etc.

The film Laboratory is able to develop and print 16mm film, together with grading, AB work, and reduction from 35mm, along with all associated sound transfer requirements. Processing and printing equipment can handle 16mm reversal, negative and positive colour stocks, as well as black and white and optical tracks.

Visnews Productions

The company now has an exciting video and film production organisation which not only caters for industry but it is at present producing a series of current affairs programming for the new ITV channel four UK. One area of this division which is proving to have greater potential than first envisaged is that of conferencing by satellite. A public relations officer, Frances Whitehead explains "You know that there are a lot of large organisations and companies these days are finding the cost of staging conferences and product launches somewhat prohibitive. Not only are they faced with ever increasing airline charges and hotel bills, many executives who ten years ago were delighted to fly half way around the World now prefer to stay where they live — the novelty of world travel having worn off. All this being the case and particularly, as its never possible to get everyone together in one place at the same time satellite tele conferencing is very much a reality and an economical alternative. This is one area where we have made great inroads and one in which we will expand rapidly in the next couple of years to cater for the tremendous demand."

Satellite Videoconference between the Chicago Exchange and The City of London.

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WORLD NEWSDESK

An Affordable Satellite Television Receiving Terminal

March Microwave Limited has introduced a new Television Receive Only (TVRO) satellite terminal for use at the Direct Broadcast frequency of 12 Giga Hertz (GHz).

Designated SATCOM 1200 it is designed to be both compact and affordable for business, educational, cable and home television use.

The system includes a 'dish' antenna, low noise amplifier/downconverter (LNC) and an indoor tuner unit.

Signals received by the antenna are amplified in the LNC and converted to a lower frequency suitable for transmission over low cost cable to the indoor tuner which transforms the signal again into one which can be accepted by a standard domestic TV receiver.

The low noise downconverter (LNC) uses Gallium Arsenide field effect transistors and hybrid technology resulting in stable, low drift performance across a minimum 500 MHz bandwith.

The indoor tuner is designed for high picture clarity and colour reproduction, providing outputs for standard domestic TV receivers as well as for cable distribution systems.

SATCOM
12GHz DBS
SAN JOSE CA

For use on future Direct Broadcast Satellites (DBS) the dish size may be as small as 2 or 3 ft but for current satellite transmissions dishes of 6 ft to 10 ft diameter are offered, depending on the location of the receiver and the reception quality required.

Technically the LNC has a frequency range of 11.5-12.0 GHz or 11.7-12.2 GHz and a typical noise figure of 3.5dB with 50dB gain.

A block downconversion system is used to 950-1450 MHz at the input of the indoor tuner which demodulates to audio and video for the PAL-G/625 line standard.

A remodulated signal is also available on a choice of either VHF channels 3-4 or UHF channels 14-83.

Satcom 1200 has been formulated to suit most known 12 GHz direct broadcast requirements but systems for special applications can also be designed.

ADVERTISING CODE TO WELCOME SATELLITES? Although satellite broadcasting has been 'in the air' in terms of advertising agency discussions for some years, it was perhaps inevitable that the problems of developing a pan-European code for advertising standards are proving very tough to solve. But advertisers recognize that such a code is necessary, if high standards of 'truth in advertising' are to be maintained. Ironically, this concept is apparently warmly viewed in the EEC consumer establishment, but not so keenly welcomed in Britain, since the practical expression offered in EEC circles would bring in new rules and regulations, for agencies to observe. Of course, some major advertising agencies have thought hard about the satellite/cable prospect, and offered seminars, workshops and other fervent chat. Getting British agencies to agree to the kind of Code proposed in the EEC as a whole, however, might not be at all simple. Consumer lobbyists in Western Europe want claims to be explicit, not over-stated and clear instructions offered to consumers who want to complain about the advertising they see. The old idea — around in Britain more than a decade ago — that agencies names should be included in the commercials for quick identification, is also likely to re-emerge. Some products may be banned from satellite television advertising — tobacco, for example, though other health-hazard items could be included once a precedent is established. And that is the rub. The rules that are finally accepted for the first satellite services will probably be a minimum, upon which other conventions and EEC directives will be built.

The EEC Commission has just produced a directive on 'misleading advertising' which will at least help the development of a Code applicable for all countries in Western Europe, sharing those commercial electronic footprints. As the directive took about seven years to produce, given the need for consultation and general agreement, it is understandable that some see its acceptance as a race against time. The satellites are only three years away, and that is no great time to build up marketing strategies to embrace the new medium, commercials and all. Member countries of the EEC may themselves want to meditate upon the directive. In Britain, for example, there have been discussions on the role of the Office of Fair Trading in a free enterprise economy, largely 'liberated' from nationalized monopolies. Similarly, the advertising industry's own Advertising Standards Authority (ASA) has been considered in need of more 'teeth' since it is funded by the industry itself. In discussion these issues, it is difficult to see how an agreement for advertising standards in Western Europe could be given the green light — until we have solved our own media influence problems in Britain. As with so much in satellite broadcasting, we are having to condense a great deal of decision-making into a remarkably slim time-span. The question is : can we do it?

AGREEMENT IN EUROPE (FIRST STAGE ONLY) Satellite TV in Western Europe came a large step forward when representatives of the French and West German governments signed an agreement on the launch of joint communications satellites. Using a French Ariane rocket, the satellites **may** beat the Radio Tele-Luxembourg service, but no-one is taking any hard bets. Both the French TDF 1, and the West German TV-Sat, will be equipped with three television and radio channels, but whilst the hardware is still under control, the political arguments are not — at least, not yet. The channels will almost certainly be used for test signals only, and the tough talking about the relationship of satellite broadcasting to existing ground-based services will continue. The West Germans, having been reluctant to introduce an element of commercial television into the publicly owned system, will have to decide how the new satellite services will develop. And even the enthusiastic French are having considerable, and sometimes, protracted talk about the future shape of broadcasting generally.

International Television Symposium

The 13th International Television Symposium (ITVS) will be held at Montreux, Switzerland, from May 28 through June 2, 1983. A technical Exhibition is also planned with international participating. This will open on 29 May and continue through 2 June 1983.

The organization of the Symposium lies with E. Schwarz (Berne) — replacing recently deceased H.-R. Probst — and Director R. Jaussi (Montreux), forming the Executive Committee. The International Programme Committee consists of H. Fix (Munich), M. Morizono (Tokyo), M. Rémy (Paris) as well as W. Kaiser (Stuttgart) and F.I. Bias (New York) for cable television.

The *Symposium* will open on Saturday, 28th May 1983, with the presentation of the Gold Medal for special technical achievement in television among others. The opening of the exhibition as well as an excursion for all participants will take place on Sunday.

The 1983 session programme will be very comprehensive. The morning sessions will last from 09.00 to 11.30 hours. Each session will consist of two to three basic papers at most which may be followed by a general discussion. The time between 15.00 to 17.30 hours is fixed for the afternoon sessions. The number of papers reporting and discussing technical innovations from industry will also be limited. The interrelated common areas of the wireless TV broadcasting and the cable TV broadcasting will be discussed jointly on Tuesday. These topics will be treated separately in parallel sessions on Wednesday and Thursday. Special consideration will be given in the 1983 Symposium programme to the digitization of video signals, high-definition television and home terminal. For the rest, the following main areas can be mentioned at present:

Wireless Television Broadcasting
- programme production and processing
- programme distribution (via satellites among others)
- high-definition television
- digital recording

Cable Television Broadcasting
- programme distribution (via satellites among others)
- innovations in cable distribution
- new services in cable networks
- home terminal

In order to prepare an up-to-date Symposium programme the topics and the speakers will be selected towards the end of the year.

The leading manufacturers will participate in the *technical exhibition* which will run in parallel with the Symposium and, therefore, its attractiveness will be in no way inferior to the previous exhibitions. At present the available space has already been almost booked.

The Symposium and the Exhibition in a neutral place — having no major share in the world television market — will draw again thousands of visitors from all around the world to Montreux at the shore of the Geneva lake in 1983. Here a rare view is offered to them on the newest and the forthcoming development.

For further information contact:
International Television Symposium
and Technical Exhibition,
PO Box 122
CH-1820 Montreux,
Switzerland.
Tel: (021) 623220
Telex: 453 222 OTM

NOTE: From March 13th 1983
Tel: (021) 631212

western union

Western Union Launches Fifth Satellite

On June 9th, 1982 the National Aeronautics and Space Administration successfully launched a fifth communications satellite for Western Union from the Kennedy Space Centre in Florida, making Western Union the first company to have five communications satellites in orbit.

Westar V came into view at the INTELSAT tracking station at Carnarvon, Australia at approximately 9.44pm and continued in an elliptical transfer orbit until Friday 11th June when an on-board apogee kick motor was fired by command from the Westar Control Center in New Jersey changing the position of Westar V from an elliptical transfer orbit to a circular orbit some 22,300 miles above the Equator. This final "burn" aligned the satellite with the Equator so that it could drift into it's temporary orbital position of 139 degrees longitude. After a period of testing Westar V will be moved to it's assigned orbital slot of 123 degrees west longitude which is due south of San Fransisco and is the slot presently occupied by Westar II.

Westar V is identical to the Company's Westar IV satellite and has 24 transponders that will be used for the transmission of date, video, voice and facsimile communications. Both Westar IV and V are designed to have a ten year operational life and have more powerful transmitters than those aboard the first generation Westar satellites.

Westar VI — Western Union's sixth domestic communications satellite — is expected to be launched in December 1983 by an Ariane 3 launch vehicle from Kourou, French Guiana. The necessary authorization to proceed with construction and launch preparations for Westar VI previously was granted by the FCC. However, the FCC has not allocated an orbital position for Westar VI or approved its launch.

Westar VI, presently under construction by Hughes Aircraft Company, will be a 24-transponder satellite designed to have an operational life of 10 years. It will carry data, video, facsimile and voice communications, as do the existing Westar satellites.

HBO shows Wimbledon

For the eighth year, Home Box Office were able to use the BBC feed to present the 1982 Wimbledon Championships to it's subscribers. This year, same-day action was provided giving HBO subscribers over 20 hours of exclusive USA coverage. Former Wimbledon champion, Arthur Ashe together with Barry Tompkins and the BBC's John Barrett presented the HBO coverage of the 105th Wimbledon championships.

DCC

M/A-COM DCC Awarded French Inmarsat Coast Earth Station

Germantown, Maryland, June 30, 1982 ... M/A-COM DCC, Inc., has been awarded a $3.3 million contract for the access control and signalling equipment (ACSE) and modulation equipment to be used by the French PTT, Direction Des Telecommunications Des Reseaux Exterieurs (DTRE), in the INMARSAT coast earth station to be located at Pleumeur-Bodou, in Northwest France. This contract was obtained with support of Le Groupe Scientifique in France.

The equipment is similar to that purchased by British Telecommunications and Telespazio in Italy. The ACSE contains a number of major subsystems, including redundant mini-computers, telex switch, four-wire switch, test ship terminal, and modems. The telex switch is implemented using a CP9000 communications processor, a M/A-COM DCC standard product. The electronic four-wire switch is used to convert R2 signaling on the satellite side and to interconnect multiple terrestrial lines and satellite SCPC modems. The TDM/TDMA modems, used for telex traffic between ship and coast earth stations, as well as communications between the coast earth station and the network coordination station, is from M/A-COM DCC's standard MARISAT hardware.

The equipment is scheduled to go into operation in July, 1983.

Digital Communications Corporation
11717 Exploration Lane, Germantown,
Maryland 20767, (301) 428-5500

CABLE RADIO

Cable operators in the States have quickly latched on to the idea that what they can do for television works equally as well with radio, and Americas vast local radio system is now receiving additional competition from far away stations. The popularity of the Cable FM service is immense and listeners are eager to tune in to stations from other cities which have previously been out of range. Cable radio works in much the same way as television — the uplink and downlink of the signal is all by way of satellites and subscribers pay a small monthly fee to have the cable hook up. Cable radio however, is not a replacement for the usual radio services and it does have limitations in that you cannot take it out with you or have it in the car. One place it can score however, is that it can be commercial free — a luxury seldom granted in the United States. New York is soon to have it's own commercial free 24 hour cable radio station and the joint proprietors John Doremus Inc and Satellite Syndicated Systems plan to launch a service in November featuring comedy, big band, 50's and 60's hits, Broadway classics and the inevitable American country music formats with 15-30 more formats to come in the future.

The new New York service will only be offered in areas that are already wired for cable as the signal has to go through a cable hook-up but it will be receivable on a subscribers FM radio set. John Doremus claims that the sound quality will be superior to that normally enjoyed on an FM radio except for the comedy format which will be in mono. No disc jockey voice-overs will accompany any of the programming but instead subscribers will receive a publication listing what music is being played rather like the airline in-flight entertainment manual — which isn't surprising as John Doremus Inc are the largest syndicators of in-flight music and have based their commercial-free station on the usual airline format.

More Abu-Dhabi TV

In the United Arab Emirates test transmissions are under way for a second channel of Abu-Dhabi Television. There are daily three-hour transmissions on a UHF channel which are expected to continue until the end of September 1982. The second channel is aimed at the large expatriate population in the Eastern region of the Emirate and will include a large amount of "foreign" (to the Arabs) material. Arabic feature films, documentaries and folklore are not to be ignored however and in these cases the announcements will be in Arabic with English subtitling and where English is the main language Arabic subtitling will be a standard feature.

INMARSAT REVISIONS

The misadventures of Marecs A have caused a slight revision in the working schedules of INMARSAT (International Maritime Satellite Organisation), the history and scope of which were described in a previous issue of **Satellite TV News.**

The satellite, leased by INMARSAT from the European Space Agency, was due to start carrying the Organisation's traffic (to and from sea-going vessels) on 29 February this year. In view of the last-minute problems (see *"Busy Days Ahead for Ariane"*) the INMARSAT-operational starting date for Marecs A has been put back and likewise the proposed launch of Marecs B, which is intended for service over the Pacific Ocean Region.

But INMARSAT remains confident that Marecs A should be ready for a "debut" in the foreseeable future, perhaps by early May. Meanwhile the traffic is being handled by a Marisat on temporary lease from COMSAT General who formally handed over control of the global satellite-communications-for-ships network at midnight on 1 February. The guests of honour at a ceremony commemorating this act were the widow and daughter of Guglielmo Marconi, who is popularly accredited as the inventor of modern wireless.

Figures published in the April 1982 issue of INMARSAT's quarterly journal **Ocean Voice** show seven satellites besides the Marecs crafts involved or scheduled for use in the system. These consist of: the three Marisats which have been operating since 1976 over each of the ocean regions and in service with INMARSAT since 1 February this year and three INTELSAT Vs carrying the "maritime package" (MCS). The first of these (V-MCS A) is planned for a June 1982 launch and September 1982 in-service date above the Indian Ocean Region; it will be followed by V-MCS B (launch October 1982, in service over the Atlantic Ocean Region January 1983) and V-MCS C (February 1983 launch, in service May 1983, Pacific Ocean Region). A fourth V-MCS satellite is under consideration for launching in June/August 1983; if the option is taken up, it would come into operation over the Pacific around the middle of 1984 or at some time in 1985.

INMARSAT's 1981 statistics reveal a total of 968 vessels using the service, as opposed to 542 for the preceding year. Oil tankers (366 or 38% of that total) and cargo/container ships (232 = 24%) remain the heaviest users in terms of sheer numbers. Fewer Government vessels and seismic ships are taking part than in 1980, but figures relating to other categories — yachts, oil rigs, passenger ships, LNG tankers and others less easily classified — show varying increases.

The number of ship earth stations tops the thousand mark and these latest published figures record over one million minutes of telephone traffic plus close on 2½ million minutes of telex.

Chinese Experiments

INTELSAT are to co-operate with the Chinese Ministry of Posts and Telecommunications to inaugurate an experiment in satellite communications and television transmissions via satellite. It is hoped that the experiment will help solve the problems China is experiencing in meeting the communications needs of various regions in China and that it will eventually lead to a domestic satellite communications system being installed. The experimental satellite system will be controlled from Peking with ground stations at ten other locations and if all goes well China will build it's own ground stations in Peking, Chengdu, Hohhot and Urumqi to form a nationwide satellite communications network via the INTELSAT satellite in the Indian Ocean.

Intelsat Extends Its Pacific Ocean Coverage

Another large area of the Earth's surface is to come under the INTELSAT TV "footprint" within the next year or so.

Western Pacific islands of the Caroline and Marshall groups have long been accessible (in a telecoms sense) only by means of wireless; Yap, as a point of interest, was made famous as the site of a wireless station integral to German naval operations in the early days of World War I until that menace was knocked out by Allied forces. Naturally, reliance on HF has meant that the 140,000 total population scattered throughout these islands has so far been without international television facilities.

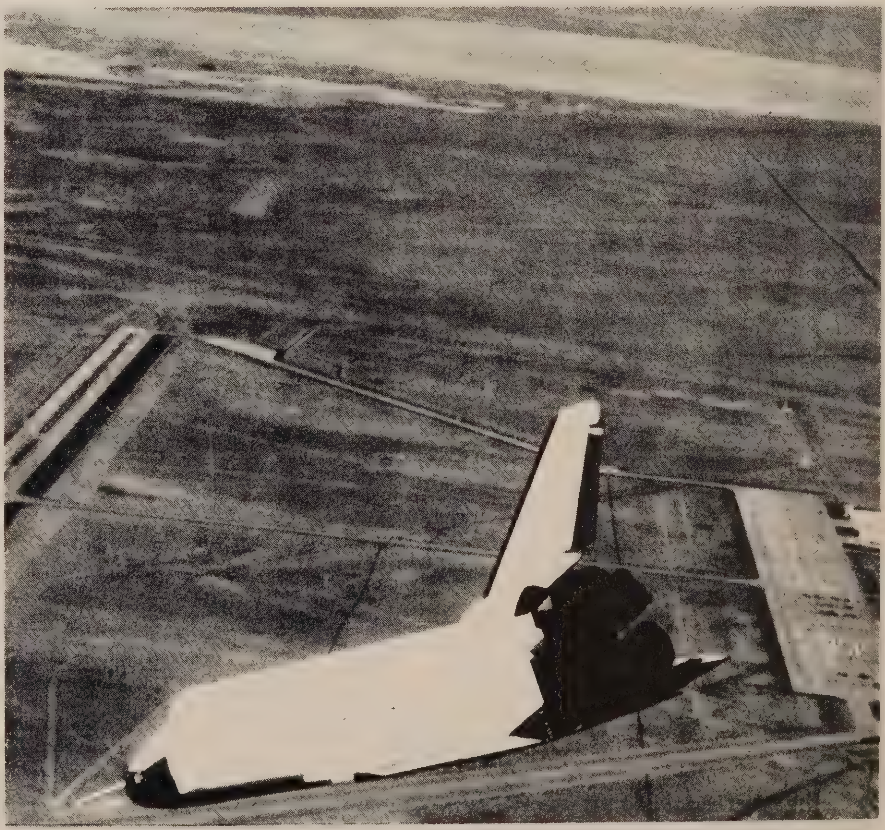
That is about to change now the COMSAT World Systems Division has been contracted to supply six satellite earth stations which will fall under INTELSAT's Pacific Ocean coverage, introducing more reliable international telephone and telex (as well as TV) links.

COMSAT — the United State's signatory and largest shareholder in INTELSAT — will own and operate these new Micronesian stations which are to be located at Yap, Truk, Ponape and Kosrae, with two more at Majuro and Ebeye in the Marshall Islands.

Currently the INTELSAT Pacific Ocean system includes Standard A (100 ft./30m. diameter or larger) aerials at Pinugay (Phillippines) and Pulantat (Guam) plus Standard B (36 ft./11m. diameter) antennas at Avarua (Cook Island), Papenoo (Fr. Polynesia), Kirabati (Christmas Island), Nauru, Honiara (Solomon Is.), Naku 'Alofa (Tonga), Pago Pago/Saipan, Porta Vila (Vanuatu) and Afiamalu (Western Samoa). Two more Standard Bs are intended for Palau and Kiribati.

Nordsat Project Expands

Iceland has now joined Finland, Sweden and Norway in the Nordsat project and as previously reported in Satellite TV News issue one, Denmark will remain an observer. During the next two years the participating nations will be planning the Nordsat project which is expected to give extensive television coverage to Scandinavia. At present the cost of the Nordsat project is estimated to be around 44 million Finnish marks (£5 million) to each of the four nations involved.



ARIANE'S MID-80s SCHEDULES

. . . subject to last month's disaster

Details published in the 29 May 1982 issue of **Flight International** show how the European Space Agency hopes to deal with the Ariane payload build-up

Plans include a shared January launch for the ECS1 and Amsat satellites together with possible "either/or" permutations which should clarify the year's schedules. In addition, a second Ariane launchpad is to be built at Kourou, easing the burden currently imposed on the existing one.

Including reservations and proposals — and taking into account that final arrangements depend upon the availability of certain payloads — the Ariane schedule depicted by **Flight International** looks like this:

1983:	January	ECS1 and Amsat
	March	INTELSAT V-7
	May	INTELSAT V-8
	July/ August	ECS2 *or* Telecom 1A *or* INTELSAT V-9
	October	INTELSAT V-9 *or* ECS2 *and/or* Telecom 1A or B
	December	Westar VI and Telecom 1A or B or ECS2
1984:	February	Spacenet 1 plus Arabsat 1 *or* Telecom 1B
	May	GStar 1 with Telecom 1B *or* Arabsat 1
	August	GStar 2 with Spacenet 2
	October	Spot 1 plus Viking
	December	(currently unfilled)
1985:	February	SBTS 1 plus Spacenet 3 (reservation)
	March	INTELSAT VA-14
	May	TV-Sat 1
	June	INTELSAT VA-15 or TDF 1
	July	Giotto and STC 1
	August	Aussat 1 (reservation) plus SBTS 2
	September	TDF 1 or INTELSAT VA-15
	October	Ariane 4 flight
	December	Aussat 2 and Anik D (both reservations)
1986:	January/ February	Unisat 1 (reservation)
	February/ March	L-Sat
	March/ April	CLT plus DBS 1
	April/ May	INTELSAT VI-1 (reservation)
	May/June	Spot 2
	June/July	Tele-X Unisat 1 (reservation)
	July/August	INTELSAT VI-2 (reservation)
	September/ October	DBS 2 and Unisat 2 (reservation)
	December	INTELSAT VI-3 (reservation)

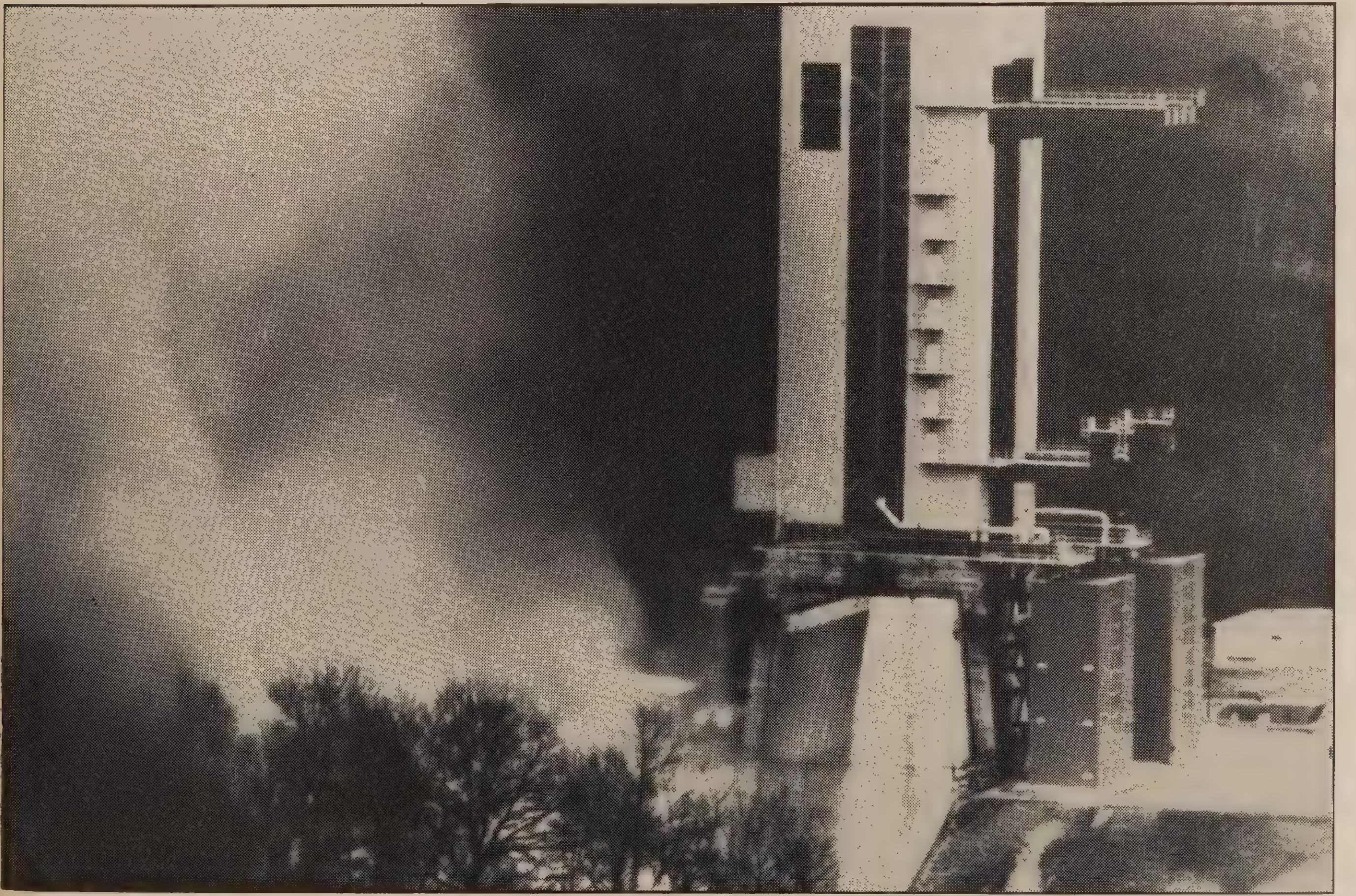
If things go according to schedule, 1985/86 is likely to see a widespread variety of satellites in orbit representing a spectrum of international interests. As just shown, these will include two Brazilian communications birds, SBTS 1 and 2, Telesat of Canada's latest Anik, the French (CNES) Spot 2, Swedish Space Corporation's Tele X *and* four others of whom we'll no doubt be hearing a lot more in the near future: United Satellites of Britain's Unisats 1 and 2 and the DBS Corporation (USA) birds DBS 1 and 2. The two Aussats — named after the Government-owned and operated company responsible for them — are the first in a new telcoms network designed to bring direct broadcast TV/radio to Australia; it will provide intercity television links, domestic telephone and data, maritime radio and also services to Papua New Guinea and various neighbouring islands. The Hughes Aircraft Company is to build the birds (plus one spare) and earth stations to work with them at Perth and Sydney at a cost of around 175 million dollars.

India

With the exception of stations in Calcutta, Lucknow and Hyderabad most other Indian television stations will soon be connected to a national service. A limited microwave network will be utilised to broadcast national programmes from 1500 to 1630 every day and will incude news bulletins in both the Hindu and English languages.

Tanzania

Whilst other nations argue the ins and outs of satellite and cable broadcasting the Government of Tanzania has recently re-affirmed that it will not become involved with a television service on the mainland until such times as it would be able to provide the service to the majority of citizens. The high cost of reception of the programmes was the chief obstacle though MP's did agree that a television service should not be classed as a luxury but a necessity to educate the Tanzanian people.



INTELSAT UPDATE

Further details are now available on the INTELSAT VI satellite series, the contract for the first five of which recently went to the Hughes Aircraft Company *(see Satellite TV News No.3, Summer 1982).*

The Hughes contract was worth over 350 million US dollars, but the total value for the series may be almost three times as much: a not-so-cool $1,000 million. INTELSAT's spedifications called for quotes based on provision of up to 16 spacecraft and each one is expected to cost over 100 million dollars — exclusive of launch charges. The Organisation's Chilean-born Director General Mr Santiago Astrain (whose term of office has just been extended for a further year until the end of 1983) commented that the choice of contractor was 'the result of a balanced assessment of the total submissions of the bidders — including financial, contractual and technical proposals for the satellite.'

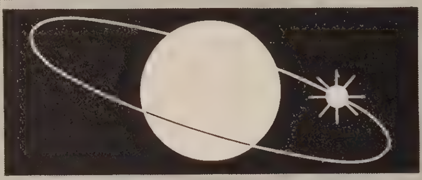
Artists' impressions show that the VI — whose weight of 7,700 lbs. (3,500 kg) reflects the claim that it will be the biggest communications satellite built to date — is to be of a spin-stabillized design. If the Hughes concept is accepted, the satellite will have a 11.8 ft. (3.6m) diameter and a fully-deployed height of 38.7 ft. (11.8m). The choice of launch craft rests between the European Space Agency's Ariane and NASA's famous Space Shuttle.

Turning from the near future to the recent past, two more in the INTELSAT V series have been boosting the Organisation's network performance during 1982. The launching of V F-3 by Atlas-Centaur from Cape Canaveral on 15 December last year is calculated to almost double the traffic capacity for the Indian Ocean Region. The bird itself has been positioned at 335.5 degrees East longitude to serve on the busier Atlantic Ocean route, but this has released F-1 for use as the IOR spare, complementing the "old" IV-A now operating at what INTELSAT terms 'near saturation'. V F-1 has been in geostationary orbit over the Indian Ocean since March, but won't enter full service there until the fourth satellite in the series has joined it on successful completion of the usual tests. Up to five more Vs are scheduled for launch until the new generation of V-As becomes available by the mid-Eighties.

INTELSAT V F-4 kept spectators at Cape Canaveral waiting for nearly an hour on 4 March 1982 due to minor ground support equipment problems, but by all accounts the event was worth hanging around to see: the Atlas-Centaur launch at 7.23 p.m. coincided with a display of heat lightning which illuminated the darkening sky with coral and pink, reflecting also upon the nearby Delta waiting to launch the Indian INSAT the following month. Atmospherics left behind, F-4 spent the next three days in elliptical transfer orbit before going geostationary and on 8 March tests of manoeuvrability and antenna deployment commenced — with positive results. F-4 is destined to occupy a position of 63° East longitude as the Indian Ocean Region Primary Satellite.

On the ground, too, INTELSAT continues to expand its range of activities with: a new wall poster depicting the two V series launch vehicles, Ariane and Atlas-Centaur; proposals for the establishment of a Historical Resources Center, an archive to preserve and organise materials relating to the Organisation's 18-year involvement in satcoms; and an in-house "Daily Update" recorded service furnishing employees with details of the latest INTELSAT matters, international calendar data and headlines.... concluding with a "Joke du Jour". Meantime, around 200 firms are said to be putting in bids for parts of the construction contract arising from plans for a new headquarters building.

Of special interest to TV distributors is INTELSAT's decision to offer its full-time television service on a multi-sender basis, allowing international TV networking on a scale not currently available. The 24-hour-a-day transmission over a dedicated network service has been operative since July 1981, but only on an occasional use, per-minute basis; according to the Organisation, the innovation will mean 'that more than one user of the service will be able to send as well as receive transmissions on a full-time basis,' while the Signatories will be able to arrange for both long- (two years plus) and short-term leases — the latter for periods of as little as three months with perhaps monthly extensions following. Judging from response so far, INTELSAT believes that up to ten countries could be using the TV service by the middle of the present decade.



Some Recent Statistics

Intellink, the quarterly newsletter of INTELSAT, reports that as of 31 January 1982 the organisation had 14 satellites in orbit, though only six of these are devoted to the international telecoms system. A breakdown of the satellite disposition reads:

Ocean Region	Satellite	Function
Atlantic	V F-1	Global
	V F-2	Contingency
	IV-A F-4	Global + Domestic Lease
	IV-A F-1	Global + Domestic Lease
	IV-A F-2	Domestic Lease + Contingency
	IV F-3	Domestic Lease
Indian	IV-A F-6	Global
	IV-A F-3	Global + Domestic Lease + Contingency
Pacific	IV F-8	Global + Domestic Lease
	IV F-4	Contingency
	IV F-7	Contingency

Of INTELSAT's 106 members, 93 countries have operational earth stations; 31 other, non-member countries likewise. The total number of operative earth stations within the system is 311 or, if you prefer, 397 antennas. The last figure can be further broken down into:

159 Standard A (6/4 GHz)
49 Standard B (6/4 GHz)
3 Standard C (14/11 GHz)
180 non-standard
6 standby.

Some idea of the kind of demand for the system — operating at a little better than 99% continuity of service throughout 1981 — can be seen from the TV figures: 20,192 TV transmissions were recorded from January-December 1981 and there were 1,734 in the January of this year.

Aid Rural Satellite Programme

In the United States the Agency for International Development (AID) has, for the past five years been involved in a Rural Satellite Programme which is exploring the use of satellite technologies to provide vital domestic communications to rural areas in the developing World. The pilot projects, which are co-operative efforts between the United States and the host country Governments, support basic aspects of development such as health care, adult literacy, agricultural improvement and classroom education. It is in these areas that AID is helping the University of the West Indies to use interactive audio conferencing for educational activities.

A new satellite based audio teleconferencing system is to be installed at the University of the West Indies (UWI) which will substantially expand the UWI's ability to provide education and development related services to it's campuses and to some of the extension centres in the Caribbean region.

In 1978 the UWI conducted Project Satellite — an eight week experiment in remote teaching using the two-way audio and one-way video conferencing techniques jointly sponsored by AID and the UWI. Project Satellite linked locations in three West Indian countries; Jamaica, Barbados and St Lucis in an attempt to determine the value of using satellite-linked technology.

Project Satellite was successful. On May 18th, 1982 an agreement was signed between the UWI and the Bureau for Science and Technology of the American Agency for International Development establishing the UWI as one of the pilot schemes for the Rural Satellite Programme.

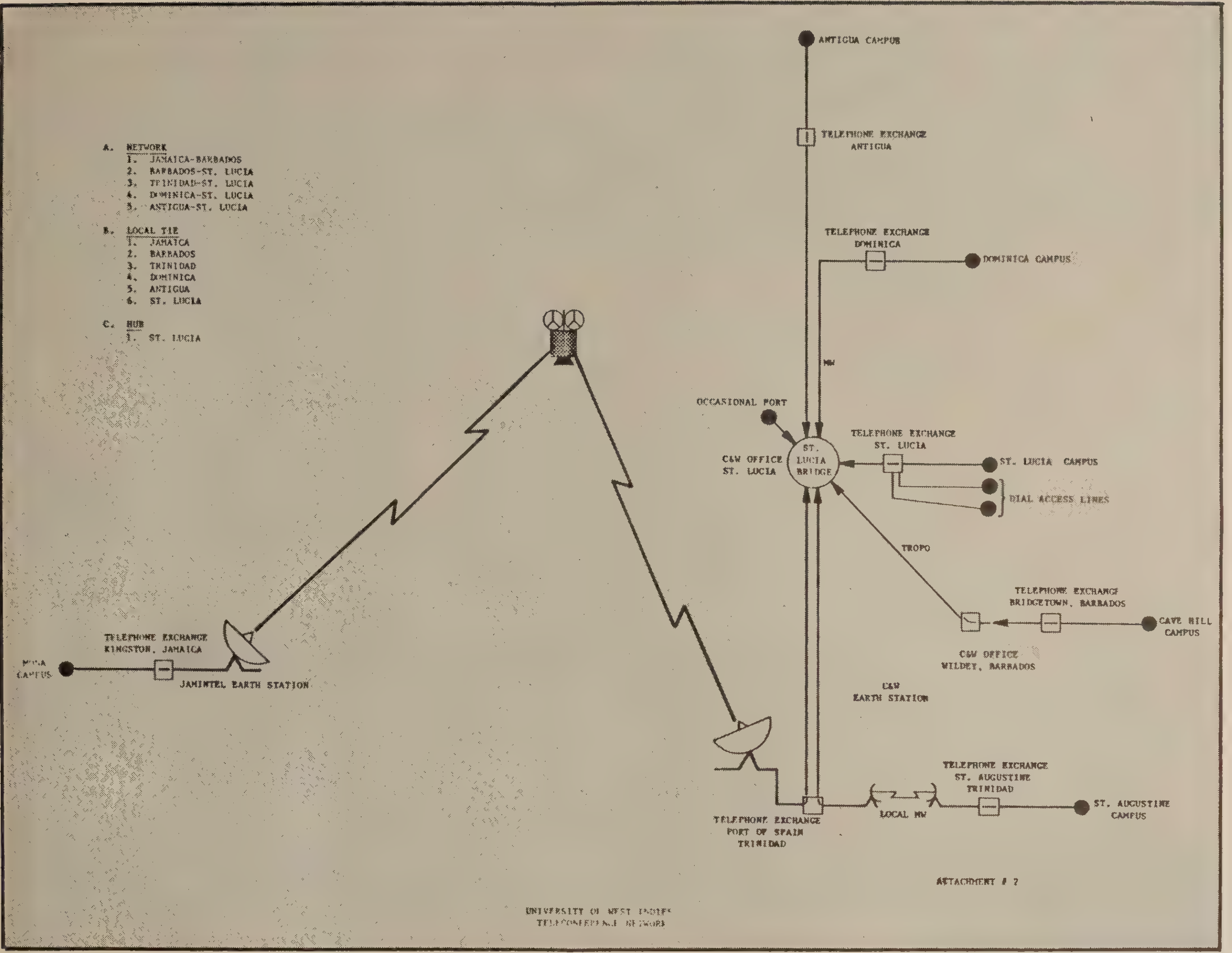
It is anticipated that this two year project will lead to a fully operational satellite-linked teleconference system for the entire university and for development agencies throughout the region. The Rural Satellite Programme will also provide the UWI with technical assistance and training to gain the maximum benefit from the interactive system for agricultural extension and education.

The teleconferencing system will initially link the UWI's three main campuses — Mona (Kingston) Jamaica; Cave Hill Barbados; and St Augustine Trinidad — with university extension centres in Dominica and St Lucia. The University will use the pilot scheme to develop it's education services in three main areas:

1. Extension studies — courses for credit towards a university degree.
2. Extramural studies — special non-degree courses.
3. Extension services — agricultural development and information distribution.

Each location in the system will have a teleconferencing room with facilities for 20-30 people. The room will be equipped with a voice circuit, a speaker system, microphones and other equipment that may include telecopies and other audio visual equipment. The system will be completely interactive. Students, tutors and instructors at any of the locations will be able to talk to and be heard by all of the people at the other classroom sites.

The teleconferencing system will enable the UWI to use the specialized faculties at each of the three main campuses to their fullest advantage. The university has a system of eight faculties; agriculture, arts and general studies; education; engineering; law; natural sciences;


ANTIGUA CAMPUS
TELEPHONE EXCHANGE ANTIGUA
A. NETWORK
1. JAMAICA-BARBADOS
2. BARBADOS-ST. LUCIA
3. TRINIDAD-ST. LUCIA
4. DOMINICA-ST. LUCIA
5. ANTIGUA-ST. LUCIA
B. LOCAL TIE
1. JAMAICA
2. BARBADOS
3. TRINIDAD
4. DOMINICA
5. ANTIGUA
6. ST. LUCIA
C. HUB
1. ST. LUCIA
TELEPHONE EXCHANGE DOMINICA
DOMINICA CAMPUS
MW
OCCASIONAL PORT
C&W OFFICE ST. LUCIA
ST. LUCIA BRIDGE
TELEPHONE EXCHANGE ST. LUCIA
ST. LUCIA CAMPUS
DIAL ACCESS LINES
TROPO
TELEPHONE EXCHANGE BRIDGETOWN, BARBADOS
CAVE HILL CAMPUS
C&W OFFICE WILDEY, BARBADOS
C&W EARTH STATION
TELEPHONE EXCHANGE KINGSTON, JAMAICA
MONA CAMPUS
JAMINTEL EARTH STATION
TELEPHONE EXCHANGE ST. AUGUSTINE TRINIDAD
ST. AUGUSTINE CAMPUS
LOCAL MW
TELEPHONE EXCHANGE PORT OF SPAIN TRINIDAD
ATTACHMENT # 7
UNIVERSITY OF WEST INDIES TELECONFERENCE NETWORK

medicine and social sciences. The main medical department is at the Jamaica campus; agriculture and engineering are in Trinidad and law at Barbados though all three campuses have facilities in the remaining subject areas specialized training will now be available to students via teleconferencing at all locations. The UWI serves a total of around 9,000 students 8% of which are at the postgraduate level but less than 1% of the regions total working population are university graduates. So, the University of the West Indies is aiming to increase it's capacity to provide education and training to as many West Indians as possible — with a little help from some satellite technology teleconferencing.

Direct Broadcasting by Satellite – Transmission Standards

On July 9th 1982, the Home Secretary announced the setting up of an advisory panel to consider the transmission standards for future direct broadcasting by satellite to the United Kingdom (DBS). The panel, to be chaired by Sir Antony Part, hopes to start work immediately and to send out shortly an invitation to interested parties to submit evidence.

In a Parliamentary answer to Mr. John Osborn M.P. Mr. Whitelaw said "The transmission standards for the United Kingdom direct broadcasting by satellite (DBS) services need to be determined soon if the necessary receiving equipment is to be ready in time for the projected start of DBS in 1986. Before reaching final decisions, which will be of great importance both to our manufacturing industry and to the viewing public generally, I wish to have the benefit of independent expert advice and am accordingly setting up, in consultation with the Secretary of State for Industry, an advisory panel with the following terms of reference:

"To consider what technical transmission standards should be adopted for United Kingdom services of direct broadcasting by satellite; and to submit advice by early in November 1982."

I am glad to announce that Sir Antony Part, Chairman of Orion Insurance Company and a former Permanent Secretary of the Department of Trade and Industry, has agreed to be chairman of the panel. The other members will be: Professor Roger Griffiths, Professor of Electronics at Loughborough University, and Professor Alan Day, Pro-Director and Professor of Economics at the London School of Economics.

Additionally Mr. Bernard Rogers, a consultant on consumer electronics and on international and national standards and issues, will be available to the panel as an assessor.

I am most grateful to the members of the panel for agreeing at short notice to undertake this important piece of public service."

The Secretary to the Panel will be Mr. P.R. Birch, Department of Industry, 29 Bressenden Place, London SW1E 5DT, (telephone no: 213 5810).

The Home Secretary announced on March 4, 1982, that the Government had decided in principle that the country should make an early start with DBS, with the aim of having a service in operation in 1986, initially with two channels. The services would be transmitted at powers sufficient to permit both individual reception and community reception with cable distribution.

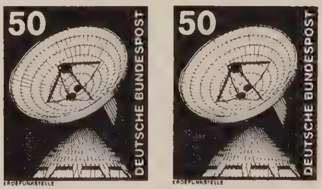
Screen Electronics announce orders for their new Dual-Font Subtitling Systems

Screen Electronics of Martlesham Heath, Suffolk, have recently supplied two of their new dual-font Subtitling Systems, type CGM-200S. The first, providing both Latin and Arabic text, has been installed at Svensk Video Textning of Gothenburg, Sweden. The second, providing two different Latin font styles, has been installed at Video Transfer Services BV of Rotterdam.

The dual Latin font system gives a choice of the basic Screen Electronics font as well as a specially developed font for Dutch subtitling. The Arabic System, which uses a unique 'intelligent' keyboard for accurate Arabic character presentation, was shown for the first time at a series of special demonstrations at the Royal Lancaster Hotel during October, 1981.

Both of these new Systems will be on show at the International Broadcasting Convention in Brighton and at the Wembley Conference Centre Video Show later this year.

New Technology Stamps for Germany



As part of it's "Industry and Technology" series the West German Post Office has issued a 50 Pfennig stamp (about 13p) bearing one of the German major Satellite reception earth stations. A representative of the Deutsches Bundespost told us that they felt that scientific developments were worthy of a commemorative stamp and that it was hoped to make the public more aware of the technology that it so often taken for granted.

Pay TV for Canada

Ten years after an application for Pay TV licences was first filed with the Canadian Radio-television and Telecommunications Commission (CRTC) licences have finally been granted to six networks. Two are national networks and will be in the form of "First Choice" a movie and variety programme service which will provide a 24 hours service showing up to 110 films a year (may be shown up to 30 times each) 40 of which must be of Canadian origin; and "C-Channel" which will be a cultural service featuring Canadian performing arts and programming along with some Canadian movies. Four regional networks have also been granted licences in a bid to encourage diversity and to discourage the growth of huge conglomerates. Regional licences have been granted to Alberta Independent for a general interest service in the Province of Alberta, Ontario Independent, Atlantic Canada for the Eastern Provinces and World View Television has been licenced to provide a multi-lingual service for British Columbia; more regional licences are expected to be granted in the near future.

The CRTC has issued licences on the condition that the Pat TV programmers abide by the CRTC regulations which have a desire to ensure a minimum amount of Canadian material is shown and to support the small Canadian movie industry. All Pay TV services must devote at least 30% of their screen time to Canadian material and this is expected to rise to 50% from 1986. Each network must also spend between 15% and 50% of it's total expenditure on Canadian material (different networks are given different fixed amounts).

Canadian Pay TV will begin on a national basis on February 1st, 1983 when "First Choice" will be showing "Star Wars" with stereo sound.

PlayCable®

THE ALL GAME CHANNEL™

Space Invaders Ousted

Hot on the heels of the Space Invaders arcade craze and the home video tennis cassettes, New York now has it's own Playcable. Subscribers have access to 15 rotating video games plus new games as they are released and all for much less than they'd pay for the same game in an arcade or for a single game cassette. The entire channel is devoted to Intellivision games (a Trademark of Mattel Inc) which are widely recognised as being the most sophisticated in the industry and having the best graphics and sound effects for more realistic video sports play.

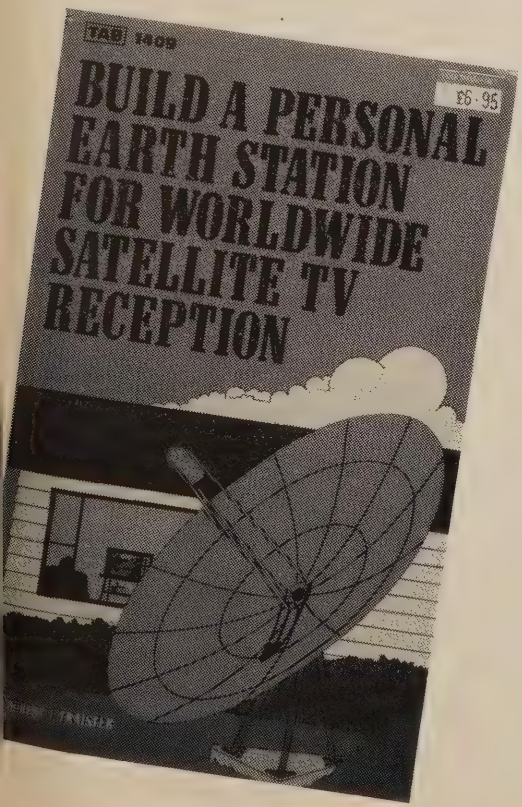
BOOK REVIEWS

by David Lazell

Building your own Earth Station is a growing part-time occupation States-side
(and could soon begin in Britain)

Satellite TV enthusiasts in Britain of necessity have constructed much of their own equipment, often adapting standard components. However, as more British companies indicate their intention of manufacturing equipment for the soon to come satellite TV in the United Kingdom, it's obviously useful to see how far the Americans have moved in this direction — from a commercial and hobby-market standpoint. Robert J. Traister, a well-known U.S. electronics writer, has just produced an excellent DIY guide which incidentally provides a great deal of information on the U.S. satellite scene. This very substantial paperback has almost three hundred pages, and costs only £6.95, so its limitations — inevitable, being written for the U.S. 3GHz/4GHz market — can be overlooked at that price, and the book used as a possible pattern for future business here in Britain.

"Build A Personal Earth Station For World-Wide Satellite TV Reception" (TAB Books, W. Foulsham and Co., Slough) invites readers to 'design, build, instal, operate and maintain your own TV reception unit', and at minimum cost at that. The market in the U.S. has been fast developing in 'package deals', a pattern that is likely to emerge in Britain as satellite transmissions considerably precede cable links in many areas. Local planning restrictions may be enforced, and some consumers may get some sharp treatment from cowboy operators. In the U.S., however, many high regarded specialist companies are in the 'package deal' business. More energetic, and knowledgeable enthusiasts, construct their own earth stations, and this book caters for both groups. Satellite-to-earth transmission and reception has no more mystique than conventional television technology. However, the skills of installing and aiming the dish antenna — called 'tricky tasks' in this book — demand some careful use of brain-power as well as the equipment. The principles of TVRO (TV Receive Only) antennas are detailed, with abundant illustrations, in a lengthy chapter which will help British readers understand the techniques (that's also true for aspiring salesmen, by the way). Though, as already indicated, the book refers to the current U.S. system which requires larger dish antennae than those which will be used in Britain.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£6·95
BUILD A PERSONAL EARTH STATION FOR WORLDWIDE SATELLITE TV RECEPTION

After an introductory chapter, the author explains the basics of satellite broadcasting. This helpfully explains how and why satellites perform, and incidentally offers, in the text, a few definitions which may assist our own explanations, to customers or lay audiences, e.g. 'a transponder is simply a transmitter and receiver which are connected to one another. The detected information from the receiver is fed to the input of the transmitter and beamed back to Earth. One satellite may have a few transponders or possibly even twenty or more. When receiving satellite TV at home, each transponder serves as a separate television channel which can be selected in much the same manner as is done today with your present set'. (p.17/18). This excerpt is noted to indicate that whilst this book has a wealth of technical information, much of its style is simple and direct. We are going to need a great deal of this simple explanatory style once the satellite TV boom starts in Britain.

The design and function of 'the personal earth station' are well detailed, with useful examination of microwave frequency use. Robert J. Traister assures his readers that whilst 'TVRO earth stations are made up of some fairly sophisticated electronic devices, the actual installation of one as well as the operation is fairly simple, and can be accomplished by almost anyone. True, many of the components seem unconventional but this is only because most persons are accustomed to dealing with the reception of television signals which are transmitted at VHF or UHF frequencies and not in the microwave region'. The best approach to building your own personal earth station, says Traister, 'is to buy the pre-manufactured antenna, LNA (Low Noise Amplifier) and receiver'. And that is good news 'for those readers who detest putting anything together'. Since that means most British consumers, the section on 'obtaining surplus components' may be of limited appeal.

However, the chapter on 'Commercially Available Antennas' give some excellent information on equipment currently available in the U.S.A., and the site needs for stable anchoring of the dish antenna. Discussions of soil suitability may become as common for the satellite TV dish as they are today for vegetable growing. Remembering the variability of U.S. weather — and the size of U.S. antennas (about 3½ meters in diameter) it is little surprising that this book gives so much attention to the anchoring of the antenna, its wind-loading and, naturally, the installation of the azimuth and elevation scales. Further product information is provided in the chapter on 'Commercially Available LNAs, Receivers and Modulators', and as this book is a new 1982 title, the equipment described will be as up-to-date a selection you could hope to find in a single reference publication. Manufacturers and suppliers' names and addresses are included in one of the several appendices.

For the layman, the chapter on 'Satellite Location Techniques' is especially interesting, though it may be quite a time before we, like many lucky American TV watchers, can obtain a computer print-out which will 'tell you which satellites can be received at your location, where to point your antenna, and how strong the signals are likely to be.' In fact, the Satellite Computer Service of Las Cruces, New Mexico will provide an independent computer analysis of your location, anywhere in the world, so that's something to anticipate with pleasure.' Robert J. Traister used this service himself, and the computer print out for his location is reproduced in the book (pages 196 and 197). Appendix A gives 'Satellite Video Systems : Complete Listing of all Programming Sources', with titles of programmes, whilst Appendix B provides a 'List of Geostationary Space Stations by Orbital Positions'. Appendix C is a twelve-page 'Table of Artificial Satellites launched in 1980'. Elsewhere in the book, you will find an LNA Noise Temperature to Noise Figure Conversion Chart, a Wind Pressure Table, Common Abbreviations used in the literature, various charts, the frequency spectrum and a useful index.

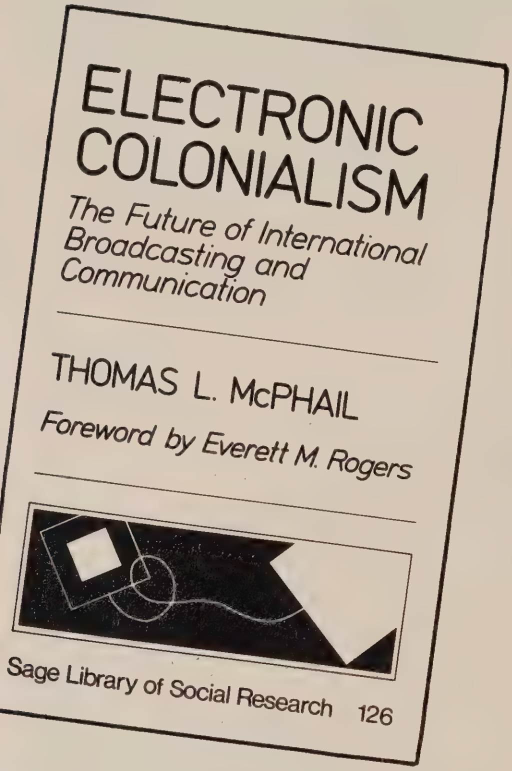
Given the lively interest in the subject, the book is expectedly doing well in the U.S.A., and has been released here coincident with U.S. publication. The U.S. system currently in use, on 3GHz/4GHz is not the same as that in view here in Europe, so that the book has its limitations. But in demonstrating the kind of market — and products — that exist in the U.S.A., and which may develop here, the book is an excellent buy, especially for only seven quid. And the general discussion of the technology and installation of a personal earth station will interest many British readers and potential entrepreneurs.

Robert J. Traister expresses his firm belief 'that in one decade satellite television reception will be the rule rather than the exception. As development continues in this area, the public should be offered more and more services, and satellite use and interest will grow more intense.' Mr. Traister strikes an optimistic note. But then, this is an optimistic — and very well informed — book. But you may have to check with your wife before starting work on your back-garden earth station!

(Tab Books, Foulsham £6.95)

Will Satellite TV be 'Electronic Colonialism'?

'Satellite TV News' reports on a new paperback on the future of international broadcasting and communication.



ELECTRONIC COLONIALISM

The Future of International Broadcasting and Communication

THOMAS L. McPHAIL

Foreword by Everett M. Rogers

Sage Library of Social Research 126

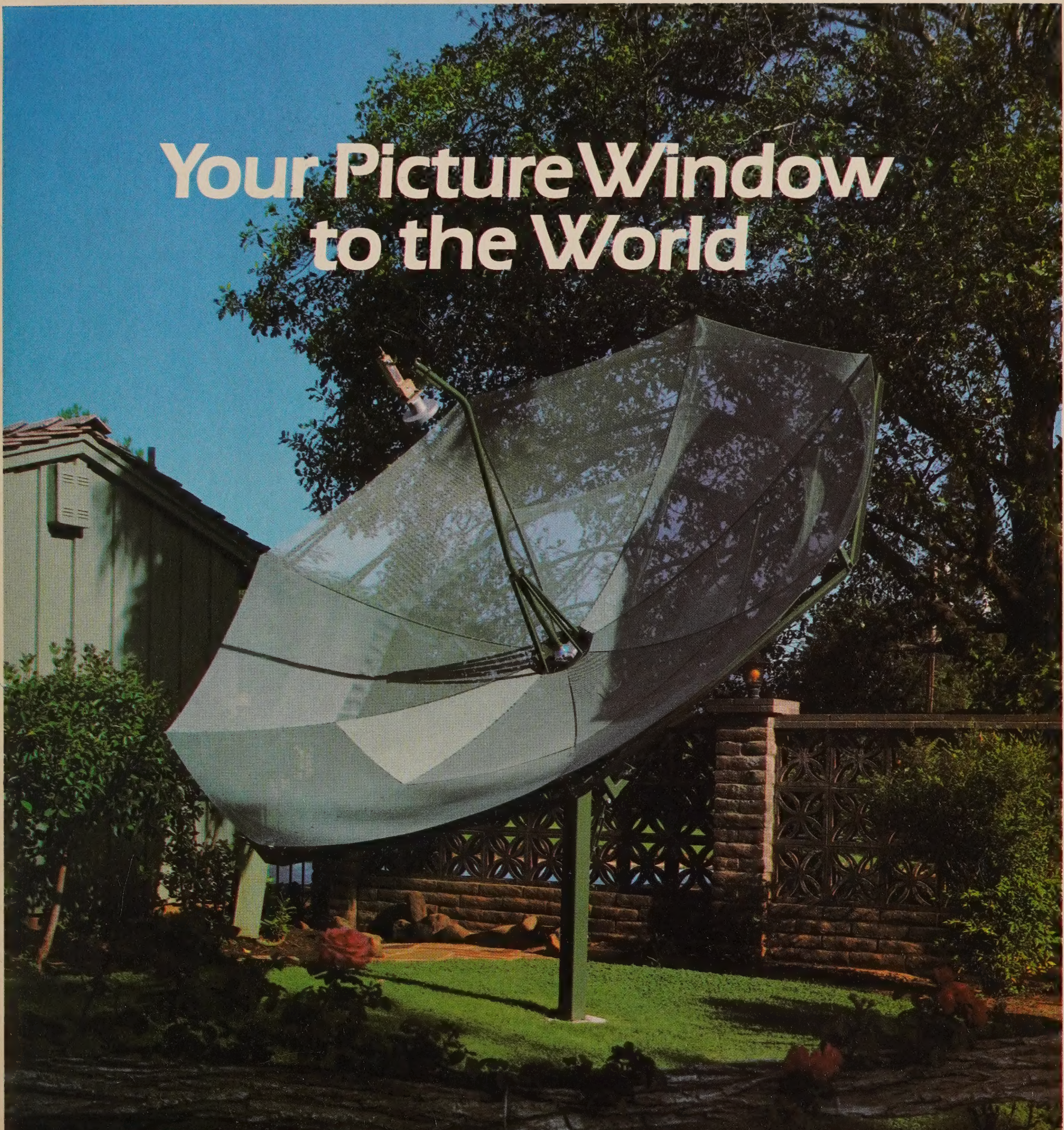
In these technological times, no-one needs reminding that Britain was the first nation to undergo 'the industrial revolution', i.e. a transition from a localized, agricultural economy to the factory system and international trade. Indeed, some writers suggest that our present problems have much to do with our being first — and not sufficiently revising our industrial outlook after the nineteenth century. However, that's another story — or the theme for a TV soap opera.

Professor Thomas L. McPhail looks at the implications of a new Western domination of less developed countries, echoing the supremacy enjoyed by the newly industralized Western countries from around two centuries ago. This time, the domination is not that of manufacturing equipment, or factory organization, but of electronic communication. In the excitement around these days in Western Europe, we may well overlook the sensitive nature of the subject, as far as the third world is concerned. Since the long-established (and mainly Western/American) news agencies supply most of the material that is the raw material of 'news', this domination in satellite terms could cause problems in nations with high levels of illiteracy, for example, or where the need for political stability is associated with control of the media. Professor McPhail has produced an excellent survey of the hazards of 'Electronic Colonialism: The Future of International Broadcasting and Communication' — and, at around £6.50, it is eminent value for money. It has around 260 pages, including index and comes from Sage Publications of Beverly Hills. Fortunately, you don't have to trip to California to get a copy as Sage Publications Inc. has an office in London (28 Banner Street, London EC1Y 8QE). This title (ISBN 0 8039 1603 5) is part of the Sage Library of Social Research, Professor McPhail teaching Mass Communication and Journalism at the Carleton University in Ottawa, Canada. His concern with Canadian cultural independence comes out from time to time, since Canada's keen interest in satellite technology — and activities thereby — was at least partly prompted by the desire not to be (culturally) dominated by its giant neighbour to the south. Canada has always been influenced by U.S. broadcasting and journalism, and some Canadians are understandably a little sensitive on the matter. Today, however, satellite technology and the new shape of telecommunications may mean that even as rich a country as Canada could become heavily dependent on the U.S.A. for major aspects of its new technology. The vast amount of resources that have to be poured into satellites and a viable space shuttle or other launch system, inevitably create the need for world markets and some kind of market domination.

Professor McPhail looks to history to raise a very interesting question: can the development of the popular mass media, largely free from party political control, enjoyed in the Western democracies, be created elsewhere? For that matter, is the shape of our modern industrialized soceity itself exportable? This is basic to the arguments about the use of satellites in the world beyond Europe and the U.S.A. — and the U.S.S.R., and perhaps China, of course. The optimists in the post war era seemed to think that by exporting equipment, expertise and capital, we would somehow create mini-Europes throughout the world. This, alas, overlooked the long struggle for press democracy in Britain, nicely detailed by Professor McPhail in this very interesting book, and all the special characteristics of emerging countries.

A great deal about the struggles within UNESCO are described here, too, and this seems to be essential reading for anyone really interested in the international satellite future. We are perhaps aware — albeit slightly — of the objections raised in some nations, to the kind of anti-social behaviour portrayed in much Western television entertainment. In Britain, we have perhaps come to accept the somewhat crude, banal and occasionally violent TV series for granted. But in nations where strongly held cultural/religious traditions are seen to be basic to the social framework, it is not too strong to describe the programmes as 'devilish'. There is, therefore, a great fear about the possible impact of world-wide television networks based on U.S. technology and therefore U.S. values. Not that the two are necessarily linked, we must add. Even careful students of media, aware that U.S. programming, like humanity itself, is a mixed bag of good and bad, feel that future developments should have far more of the culture of the less developed nations. Indeed, it is often claimed that the ignorance of the average television watcher in Britain or the U.S.A. about real events in less developed parts of the world is largely due to television programming. A different kind of illiteracy is growing in the less developed countries — despite all the efforts, the growth in population means that by the end of the century, there will be more, not less, people unable to read or write. In political and commercial terms, these large unreading populations may still be of considerable importance, and given the ever-decreasing cost of mass production electronics, the portable television set may be as familiar as sight in the late 1990s as the radio is today. No wonder that sensitive cultural and national leaders in many countries have deep reservations about a space satellite technology that will be dominated by Western, commercial values. Had those post-war dreams about 'modernization' or the 'Europeanization' of the third world come true, these questions might not come in so sharp a manner. As it is, the more that the affluent West exports by way of its programmes, the more sharp the division between rich and poor nations is seen to be. World wide satellite communication may well bring a sword and not an olive branch to the human race — unless we handle the problem very carefully, **now.**

Professor McPhail does not offer a gloomy view of the future. In fact, for around seven quid, this is one of the most interesting paperbacks on the subject — and remarkably well-detailed. It covers the international aspects of a New World Information Order in a detailed way, showing the role of the United Nations agency, UNESCO, and the high level agreements — and arguments. It may be little more than a historical accident that the U.S.A. became so dominant in terms of video, film and other media, though the California climate had a little to do with the success of Hollywood. A few nations have shown their competence in developing a film industry even with a very demanding economic environment — India, for example. Now, we have to decide how less developed countries can contribute culturally to a world wide satellite system, and/or use their potential to develop native talent **and** some space industry. But how are poorer nations going to find that amount of money? It's not a question easily answered in today's recession in the West. But, as this book well reminds us, the idea that we can send up a few satellites and enjoy more sport, more feature films, more of everything else that's going in entertainment, **without** considering the cultural impact on the rest of the world, is (to say the least) unwise. Communication satellites have to be for everyone, even for those millions who, on present projections, will still be unable to read and write at the end of the 1900s — when we have our multi-channel sets, stereo TV and a handsome family of satellites. **If** we're lucky. The unasked question in Professor McPhail's book is simple enough: will the less developed countries remain docile as the affluent west spends vast sums in this latest bonanza for the blest?



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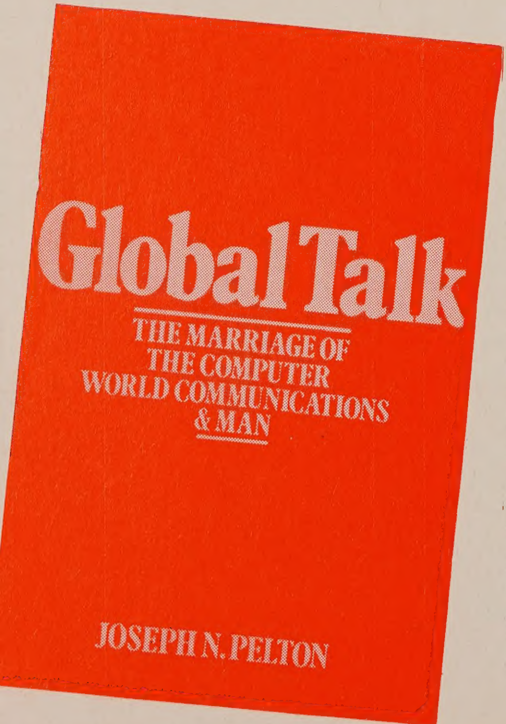
Global Talk :
The Marriage of the Computer, World Communications and Man

What will the future be like, beyond today's space shuttle and space satellite communication? Dr Joseph Pelton, a member of the staff of INTELSAT (International Telecommunications Satellite Organization) suggests that the 21st century could bring direct control from human brains of remote robots; three dimensional television using holographics to circle the globe — and even reach space colonies in our solar system. It may seem a long way from our present pre-occupations with a handful of satellite channels in or around 1986, but Dr Pelton's new book ('Global Talk : The Marriage of the Computer, World Communications and Man' : published by the Harvester Press, Brighton, ISBN 0 7108 0371 0) has more than a flavour of science fiction in its style. It is a very readable book, 'entertaining' would not be too strong a word for some of the material — yet it is underpinned by the latest developments in the technology. In that sense, this is a very important book for British readers, and is warmly recommended.

For example, in one lively chapter, the author summarises a survey of the future, including views of eminent men in the technology, as an interview with a late twentieth century Delphic Oracle (shades of ancient Greece!). This interview with top management at Delphic Enterprises has an enquiring reporter, known as 'Skeptic' asking tough questions of Lady Cassandra — no relation to the late, lamented 'Daily Mirror' columnist. Incidentally, it is in this section that the problem — or possibility — of solar power from space satellites receives some attention. It seems as controversial here, as anywhere else. The idea that outer space can somehow make up for mankind's immensely wasteful use of fossil fuels on earth is, shall we say, a little uncertain. But the argument has its enthusiasts — and the technology is full of surprises!

Also included here is the 'Big Brother' problem of personal surveillence by satellites. It seems technically feasible that some future dictatorship could keep watch on every citizen's movements: but, here as elsewhere, the technology has great implications for good or evil use by us human folks. As for a world-wide standard for television — much discussed in Britain at the present time — this particular Delphic Oracle doesn't give a lot of possibility for that, until maybe the digital revolution of the 1990s. Anyway, Lady Cassandra doesn't answer all the questions we would like to ask, but Dr Pelton makes this a very stimulating approach to scientific discussion. Similarly, he offers a 1983 scenario in which a U.S. president looking for more new frontiers to conquer, launches a massive U.S. program(me) for a Global Applications Space Platform Network. Applications Space Platforms (ASP) may spring initially from groups of linked orbiting satellites, but will quickly evolve into integrated multi-function communication and technology services taking over and greatly expanding the role of the 1980s communication satellites. It has already been pointed out (in this magazine, as in other papers) that the amount of 'room' for orbiting satellites is very limited, and may even cause a few international squabbles as more nations want their own satellite services. Dr Pelton suggests that the growth of satellite communications in the future will be considerably restricted. In fact, our present thoughts on the Hunt Inquiry are stimulated by his view that fibre optics terrestrial systems must provide almost all communications services. It's hardly surprising that he indicates that this view is not especially popular with the large aerospace corporations who, presumably, see satellites as big golden eggs. A global network of five or seven ASPs is, he affirms, the best answer to our space application needs. Dr Pelton goes into considerable details to show the multi-role and many faceted economics of these Applications Space Platforms: in fact, they seemingly consign today's space satellites to the age of the steam engine.



Earlier in this fascinating book, Dr Pelton offers an overview of the past, pointing out that theories on space travel and satellites go back quite a time — there's an interesting picture of a 'brick satellite' put up — in fiction — in the mid nineteenth century. And some readers will probably know that those sharp Babylonians had something that would pass for a computer. Today's real scientific tricks come largely through the amount of money spent on Research and Development (R and D) but Dr Pelton points out the strategic necessity of putting the money where the future is. A car manufacturer, for example, may spend millions of dollars on useful improvements to an existing product — a more efficient car, less prone to rust and decay. But a smaller specialist company may be better prepared for the space age just ahead by spending smaller sums of money on the new technology. The real business of the future, he suggests, will be 'Telecomputerenergetics'. As three major bands of industrial technology merge — telecommunications, information processing and energy — a new industrial activity embracing all three will rapidly develop. In passing, one is bound to ask how well we are training today's young students in schools for this new industrial wizardry. This is certainly a book for a wide readership — teachers and college specialists no less than satellite TV watchers.

Some of the world's major corporations are already moving into what Dr Pelton forsees as the strategic industry of the 21st century, 'tele-computerenergetics'. Some interesting examples are given here, reminding us that Britain's current Information Technology Year should have been around more than a few years ago. There is a very keen industrial race to grasp the major prizes in technology, which, in some cases, could all but dominate world markets. Yet in all this, Dr Pelton notes that 'the true key to progress in telecommunications is not in establishing globe-spanning links — this is the aspect where continuing breakthroughs can be clearly forseen. The key is in finding more efficient and cheaper ways of communicating next door.' The impact of new technology on home and office communication, using fibre optics, is well detailed. Not before time, some U.K. telephone subscribers would say, their ears subjected to the manifold buzzes and whirrs that seemingly come from the ancient cable under-world.

An important chapter looks at 'the information societies', major industrial nations and their prospects for satellite use and advanced telecommunications. Inevitably, the U.S.A. is given a special scrutiny here, and this is almost a potted history of how the U.S. got into satellites in the first place. The results of the U.S. 'no holds barred' contest, suggests Dr Pelton, could be 'dramatic, exciting, entertaining, humourous and even tragic — but never dull'. Maybe that's true of Europe, too. Even of the rest of the world, since world-wide communication at will, is going to break down many social and commercial assumptions. It seems destined to shatter many of the methods currently used in product development and marketing. The political implications are also awesome. Dr Pelton's essay on technical standards — 'Comprehensive Standards or Gumbo Stew?' — precedes a discussion of the role of the World Administrative Radio Conference (WARC). "To put on a successful WARC," writes Pelton, "requires more rehearsals than most productions now playing in London's West End. Indeed, a WARC can run longer than many plays. Certainly, eleven weeks is not a bad run for a show with no plot."

The allocation of satellite frequencies, and their likely use, is detailed here, an excellent reference for enthusiasts, along with the excellent appendices. Appendix One, for example, details the satellite and cable systems of the world, presumably at 1980, when the book was completed, whilst trends in International Satellite Communications Growth are shown in Appendix Two. The book also has an excellent glossary of technical terms, and a good index.

A note at the end of this lively, well detailed book states that Joseph N. Pelton is currently Executive Assistant to the Director General of the International Telecommunications Satellite Organization (INTELSAT) — the organization that provides 60% of the world's overseas international telecommunications. In fact, the book is dedicated to the members of INTELSAT which, in the author's view, 'represents man's most important step yet towards not only 'global talk' but perhaps ultimately, towards global peace'.

Dr Pelton asks, 'Is there a space station in your future?' Well, the book is highly recommended reading, but more than a few readers may feel, after reading it, that there's still a lot to be said for a cottage in the country (without an antenna in sight!) 'Global Talk : The Marriage of The Computer, World Communications and Man', by Joseph N. Pelton (Harvester Press, 16 Ship Street, Brighton) is an important study deserving a wide sale among British readers. Paperback copy is £7.95, but a library edition is also available.

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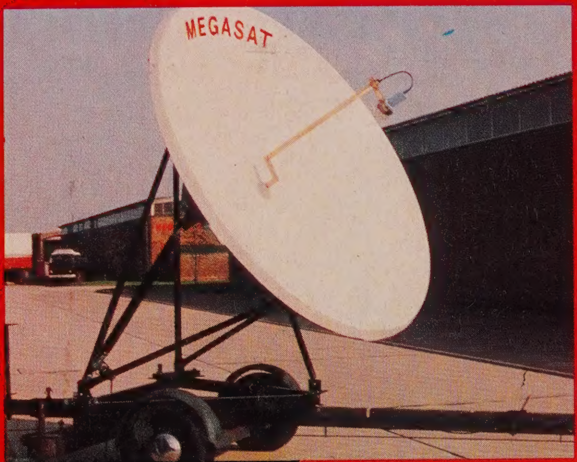

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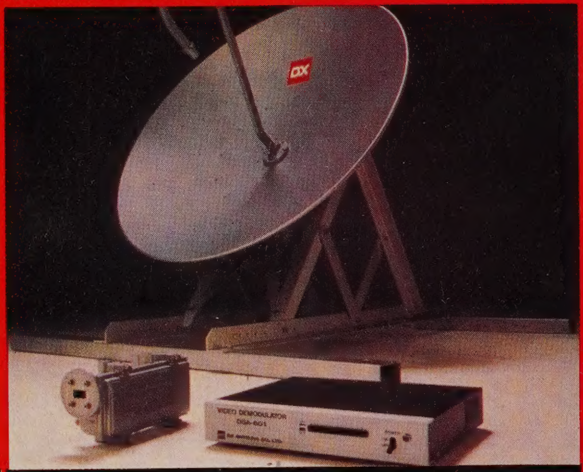

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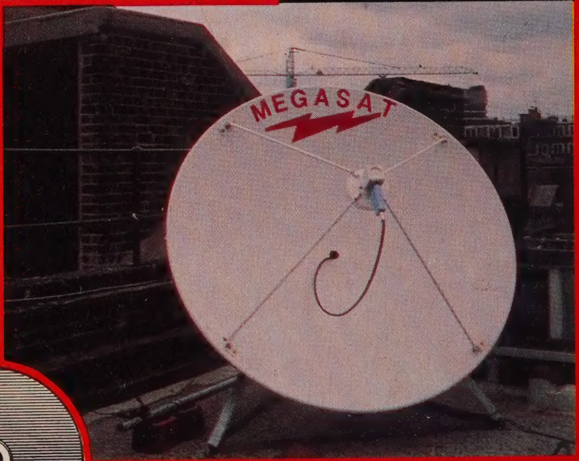

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